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THE BUILDING NEWS

AND

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Effingham House,

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A BETTER NEW YEAR.

Let us hope so, at any rate. The past has been for the most part one of those about which the best that can be said is that it might have been worse. That, after all, is not a little to say, remembering its immediate predecessors. War scares from without and bitter political recrimination at home have not, so far, stopped the flow of the rising tide of better employment among the workers. Trade suffers, of course, even from coronation rejoicings on the one hand, and railway and dock strikes on the other; but, when genuine jobs about the wage-earner prosper, and even if some of his better wages go to the cinematograph shows, some of us may have had a little better else to do have made a little by building and adapting them. Content, perhaps, with running our friends the doctors, Mr. Lloyd George has let the building trades alone this past year, except to the extent of the insurance tax, which we are to pay—or not to pay, which is it?—in common with the rest of the recipients of his refreshing fruit. A vision of panels of architects and builders all compelled to carry out town-planning schemes and build "garden cities" for next to nothing, mind of course, the Celtic imagination any day, and we shall resign ourselves to it as the coils do to skinning, remembering, after all, if we are good Liberals, *Lucet in Scythiam qui vult citius Charibdim!*

In the meantime, let us be thankful that some of our clients and customers do occasionally pay us, even if they spoil our buildings—unlike some of the garden city promoters, who, so Mr. Ashbee says, do not pay but do spoil. All the people who are making money hand over fist will not be over in motor-cars. No English or Scottish architect probably, need apply for the Professorship of Home and Town Planning his compatriots want to endow as a "national tribute" to the Chancellor of the Exchequer at the University of Wales; so the general public may still find here and there, perhaps, an architect not too proud to work, or too busy as a University Professor to do much else than criticise his less lucky brethren. May they find him, ere the year closes, a prosperous unit of an undivided and registered profession, guarded from the intrusion of the charlatans and guaranteed the standing which is the client's best guarantee for good work. May it rain his competitors in such numbers that only thousand-pound premiums shall attract competitors. May capitalists see once more that no investments can vie with bricks and mortar—and, of course, as solid and golden investments. May every municipality want a new town hall, or art-gallery, every

merchant prince or noble a new mansion, every millionaire find his way to our sanctum as Holloway did years ago in search of an architect, every creed its chief joy in the funds for a new cathedral as big as that at Olympia—all except the doors! That is "a miracle" you say? Perhaps all are miracles. Not faith enough to work them? Let charity, anyhow, and good fellowship, and plucky endurance stand us all still in good stead as they did our fathers in the "good old times," which, oftener than we think, were as bad as ours!

THE RESPONSIBILITIES OF ARCHITECTS.

There was a debate and discussion at the R.I.B.A. on the 18th ult., upon "The New Responsibilities of Architects." No subject could well be chosen of greater interest and importance to the profession, to builders, and, incidentally, to such of the public as have the courage to become building owners. Papers were read by two well-known architects, Mr. W. H. H. White and Mr. Edward Greenop, and the discussion was enlivened, or enlightened, by two lawyers, Mr. Montrose Brice and Mr. Blanco White. The whole of these proceedings were reported as fully as we were able in our issue of December 22, 1911. Now, in reading over this mass of matter the first point noticeable is the clash of conflicting ideals between the architects and the lawyers. It is, of course, temperamental, if not fundamental. Architects are artistic first, and men of business afterwards; they never can be lawyers. Those who follow the law aim at logic and exactitude, though, to be sure, they often miss or muddle both. The architect is inspired by the spirit of his building, and for him the letter killeth. He seeks to, and does, act in an artistic, and often artistic, way in carrying out his conceptions. The lawyer is compelled to keep his eye on the contract, the facts, and the figures; so of course they come into collision. Mr. Greenop opened his paper with a reference to this matter, and he suggested that "a good architect must be half a lawyer" and lawyers should be half architects. We fear that if such a plan were workable, both would be useless. A mixture of the artistic and legal mind in equal parts would be a curious, if possible, compound. The professions have basic differences in their modes of thought which are entirely irreconcilable. It certainly is essential that every architect should also be a man

of business. But that is a very different thing from seeking to become a lawyer. It is practically impossible to acquire the legal habit of mind without training.

Take Mr. Greenop himself as an example. He gravely opens his paper by saying he will not refer to "leading cases." Yet he quotes reports of actions tried before special and common juries, or judges sitting alone in London or en circuit, or the Official Referee, as if these decisions were precedents. Now, by a "leading case" a lawyer means a judgment that becomes an authority for future use, to be quoted in other Courts. But these verdicts of juries are of no value whatever, save to the parties concerned, except as somewhat illustrations of the happening of the unexpected or indications of the muddle of the middle-class mind on such matters. Nor are the judgments or obiter dicta by judges sitting at Nisi Prius of much more worth, for they are merely passing decisions upon the evidence given. They are not officially reported, and they are not even binding upon similar judges of equal jurisdiction. We fear that the collection of newspaper cuttings of this kind will only cause confusion to the collector, although they may be useful as warnings against running the risks of the law's uncertainty. Lawyers, therefore, would not admit these to be leading cases, and, indeed, they would prefer styling them misleading decisions. The vagaries of juries, whether frankly called "common," or those that are, humerously, still named "special," do not weigh at all in legal opinion, being based only upon conflicting evidence, swayed by advocacy, and darkened by prejudice. Nor are judgments at Nisi Prius usually included in the law reports, which give the cases really quotable. Indeed, if it is practically only the records of the Chancery judges, the Divisional Courts, the Court of Appeal, and the House of Lords, that are of any value, and that greatly varying, as authorities. It is said that lawyers differ, and if course they do, as do doctors, and as do judges and Courts. Recorded cases have often shown that after the ruling of a County Court has been upheld and been reversed by intervening appeals, it has had to be restored by the House of Lords. These things are inevitable. Law can never be an exact science in the sense of mathematics, although even there we find distinct divergences of opinion. Law must always deal with facts, and these are constantly getting confused with fictions that are hard to distinguish from reality.

Although we have tried to explain the lawyer's position in these matters, it has been done mainly with the view of answering the suggestion that every architect should himself be half a lawyer. There is an old proverb about a man who acts as his own lawyer. To combine these two entirely opposite modes of thought is surely impossible. But we have the deepest sympathy with all architects in regard to their position of responsibility. The law, as it affects them, is even more unsatisfactory than it is in its dealings with the public or with other professions. Their responsibilities are full of risk because they are ill-defined and indefinite. No architect working well and fairly is high-calling ought to be asked, or expected, to know or to find, if the legal effects of his actions save as shown by the contract he has entered into with the other parties concerned. This contract is truly the crux of the whole matter. However long the litigation may be, and however widely it may diverge, it all comes back to the contract in the end. This is at once the foundation and the foetus of the edifice. Now we are told the Practice Committee of the R.I.B.A. have been working for some years upon the revision of this form commonly used. It may be doubted whether any committee of mixed men ever could, or can, draw up a contract which shall be clear and efficient, and yet hold water when it comes to be tried. It seems to us that at times in its final form, a building contract, to be complete and cohesive, must be the work of the mind of one man. What has hitherto been generally done is to stop up the holes discovered by leakage in existing forms by patching. The result is that new clauses or modifications are frequently added, causing more confusion when the time for its legal construction by the Court arrives. We venture to think that the standard building contract should be made shorter and simpler, and so stronger, by striking out all sorts of provisions that are seldom needed, and are never read. If a contract were drawn up on bold lines, and a clear plan, most details now dealt with could be omitted and left to arbitration. But that method presumes that the architect shall be made, in law and in fact, the sole arbitrator from the beginning, that he will act throughout in that judicial capacity, and that his award will be accepted by all parties as final and conclusive.

It is just here that we find the bite of the whole business. Will the architect accept the full position, powers, and responsibilities of an arbitrator from the beginning to the end of the job? The building owner would doubtless do as advised, and the builder must perform take on the whole contract or let it alone. The divergencies in the decisions that were quoted by Mr. Greenop, and in the views of the lawyers who spoke at the meeting, arose out of the confusion caused by the way in which the contracts were drawn. It is not much use inserting a clause that the final award of the architect shall be conclusive if you then try to wriggle it away by exceptions and provisos. So architects have got into the meshes of constructive arbitration, and have been told by the Courts that they were really acting judicially as arbitrators when they thought they were only signing final certificates upon reports and papers put fairly before them. But if an architect is created and avowedly acts as arbitrator between the parties, the position is plain, and his high duty is defined. A contract can be so drawn as to prevent litigation where provision is properly made for the architect being sole arbitrator. His award would

be declared final. There would, of course, remain questions of negligence or fraud or collusion, with which we are not here concerned. There might also be real points of law arguable in the usual way, generally in the Court of Appeal, when the award has been made a rule of Court, and enforceable as such. But these cannot be avoided, and may arise out of any arbitration, however guarded against. The architect can no longer vaguely pose as being something between the agent of the building owner and the final arbitrator of the whole business. It is mainly by confusing these opposing parts that troubles have arisen.

By making the architect of the job the arbitrator between the parties we should substitute his final award for his final certificate. The award would be given a higher sanction, but it would be made under judicial responsibility. There is no reason why the architect should not be guided by expert legal advice in making that award, paying fees properly chargeable to the business. The thing to aim at is a real finality. Now that the Courts have raised the point of constructive arbitration upon these certificates, their finality is very much weakened. Recent litigation has shown this conclusively. It is, indeed, not only the law's uncertainty as to victory at the finish that dismays all who enter into the gloom of the law-courts; it is still more the cumbersome and costliness of its methods. Juries are, of course, worse than useless for such disputes. Then there is the "Official Referee," but the recent case of "Minter v. Waldstein," about a large house at Cambridge, and which lasted for forty days, shows how entirely unsatisfactory his hearings must be, in the very nature of things. The costs ran into thousands of pounds, and may be gauged by the fact that the shorthand writers' bill alone was some £1,200. The real legal fight has, probably, still to come, and so far, after all this weary waste of time and money, that case has settled nothing of any value to others than the parties concerned, while even they are doubtless both left sore and unsatisfied.

But if the architect is made sole arbitrator of the contract job, he must act as such throughout the job, avowedly and accordingly. He must hear both sides where there is any dispute, and he must judge fairly and impartially between them. All this means more work and more worry than the old method of signing a final certificate, and so having done with the matter. Even if this suggestion cannot always be adopted, at least steps could be taken to stop the existing facilities for litigation between owners and builders. The contract can provide for arbitration under the auspices of the R.I.B.A. itself, and make this the only tribunal possible for the parties in their disputes. But this again, though vastly better than our present welter of lawsuits, leaves the door open to long and costly hearing of evidence and speeches, by the arbitrator appointed by the Institute. One great aim of all who are interested in building should be to get rid of all this waste and worry. The architect of the job knows, or should know, and would have to know, all about the job, and that knowledge he could, and must, use in his position as arbitrator when deciding disputes and giving his final award. He would become judge and jury in the matter, and his finding could only be upset where it was shown to the High Court that he had, in effect, misdirected himself upon some point of law, as ordinary judges are often held to have done, or upon his own fraud or collusion.

In the present position of the authorities, and upon the basis of the complicated contracts generally used nowadays, no lawyer would care to give a clear opinion as to the ultimate result of any proposed litigation. It is quite useless for us to go through the decided cases over again. Their apparent contradiction is often explainable by going into the facts involved and the form of contract used. But we take it that the broad effect of the recent judgments in the Courts of Appeal is that any architect supervising and certifying upon a building becomes legally an arbitrator throughout, although that word may nowhere be employed. If this is so, it seems to follow that the only safe and sane plan he can adopt is to accept that position and act up to it, openly and avowedly, as between his client and himself and outside parties. He must also still remain the agent of the building owner. But as regards all disputes between the owner and the builder, he would become sole judge. In this way there should be a finality really final. All three parties to the triangular contract would be legally bound by its clauses. The law allows them to create, or elect their own tribunal for the settlement of all differences, subject only to those larger questions of law and jurisdiction which no arbitration can always and entirely avoid. This subject is one of much difficulty and delicacy. Various vested interests may be involved. With questions of that kind we are not concerned in these columns. Our only desire is to suggest some method by which architects, owners, and builders may be able to work together in peace and prosperity, without doubt or discussion, and clear of the law's uncertainty and the law's delay.

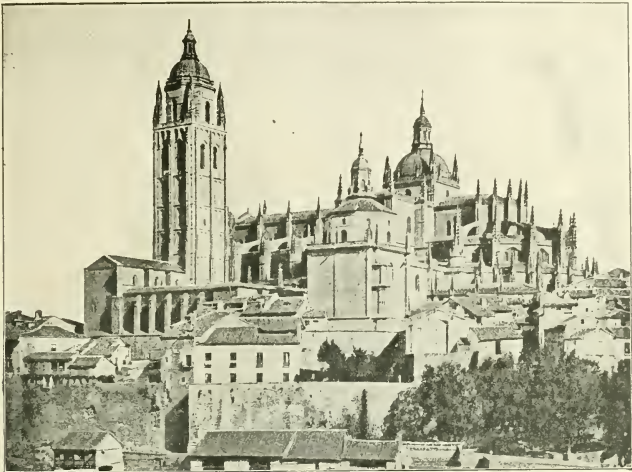
CATHEDRALS OF SPAIN.*

[WITH ILLUSTRATIONS.]

To readers whose interest in the great Spanish cathedrals is reawakened by the reproduction of Mr. Henry C. Brewer's very interesting water-colour drawing of Segovia, which, with his kindly consent, we are enabled to offer to-day, we can recommend Mr. Gade's appreciative record. There is indeed no lack of English books of the same kind. Street's *magnum opus* of forty years since "Gothic Architecture in Spain," of course, still remains the most complete of all, in scope, inspired, moreover, by a fellow feeling which scarcely exists to-day. Among others, Charles Herbert Moore and Sir Matthew Digby Wyatt brought pen and pencil to bear lovingly on the art of the people whose history has been so strange—a community of grandeur and decadence. Possibly of all her admirers J. B. Waring was one of the most modest and intelligent. Mr. Gade does not seem to have been aware of his existence, and yet we venture the opinion that none knew Spain better. An occasional but always welcome contributor to our own pages in the seventies, we used to miss him for months, and the answer in response to the inquiry following his reappearance, "Well, where have you been this time?" would be "Oh! to Burgos." And then came the simple story of months of quiet residence with and amongst the people he cared for so well, followed by a modest volume embodying his experiences and his tribute to the wonderful genius that created the monuments that stand to-day in barren deserts, on parched and lonely plains, and amid hovels crumbling into ruins, nevertheless, as we believe, and as Mr. Gade

* Cathedrals of Spain, by JOHN ALVINE GADE. London: Constable and Co., Ltd., 1908, etc.

* See "A Record of My Artistic Life," by J. B. Waring. BUILDING NEWS, p. 591, Nov. 29, 1873.



SEGOVIA CATHEDRAL.

believes, guarantees of a renaissance of all that constitutes the true greatness of a nation when the Spanish people have learned the lessons of real progress.

Certainly, as Mr. Gade contends, no proper study of buildings like these can be made apart from their surroundings and past history. Even here in England, where the cathedrals were built round by the clergy, and shut off from the rest of the world by high walls, they have their occasional vivid connection with our national history, if not with the daily civil life of its people. In France they were essentially the centres of all the interests of the masses, and belonged more to the people than to the clergy. As Mr. Gade reminds us, Notre Dame d'Amiens, for example, was the church of a commune, what Walter Pater calls "a people's church." But all were civil rather than ecclesiastical growths, and essentially the glories of the City and the laymen. But in Spain the cathedrals were both—municipal and ecclesiastical. Of bloody strife or peaceful union the city was the body, the cathedral its animating soul. Not for prayer alone, but to live in. They were the feast places, the halls of conclave, the theatres in which the mystical sacred plays were presented, the art galleries, the christening, crowning, and burial places of kings, and their walls echoed with the first murmurs of the masses, voicing the discontent that no answering statesmanship seems to have had the genius to shape into betterment.

So that one welcomes unreservedly the combination with his architectural description of Mr. Gade's historical reminiscences. It is true he limits both to eight of the cathedrals—only a third of their total number, and that so far the series, as he admits, is incomplete. The book doubtless would have grown too bulky had it included them; but we could well have endured that had it included Santiago da Compostella, with its world-famous portal; and Barcelona, or Gerona, Lerida, or Tudela. Still, of the eight he has selected, each abundantly justifies its inclusion as a type. Salamanca, with its new 16th-

century Gothic cathedral, with its Later Renaissance additions built on to and dwarfing the old 12th-century Romanesque structure with its later Byzantine and French Gothic influences. Nowhere else in Spain, and seldom outside her borders, can one take in the development of successive styles as at Salamanca, with her ineffaceable memories of discord between Moslem bands and the early Castilian kings—Crescent and Cross constantly supplanting each other on her turrets. Avila, where the ochre walls and bastions girdle the little city, with their eighty-six towers, and ten gateways which pierce the walls, and its cathedral, an embodiment in architecture of the church militant, if ever there was one—a huge grey bastion, crowned at all points by battlements and galleries for sentinels and fighting-men. Burgos, and Leon, and Toledo, all mainly Early Northern Gothic, but with their late additions unmistakably of the Plateresque and Churrigueresque styles. Seville bearing obvious witness to the union of East and West with its Moorish giralda towering above the huge pile, mostly Gothic within and Renaissance without. Granada, with its tombs of Ferdinand and Isabella and Philip and Joan, but least interesting of all as far as the cathedral goes, marking as it does the advent of stagnant uninspired formalism in constructive forms.

Of the two Late Gothic cathedrals, Segovia is greatly the superior not only in the splendid development of the Eastern end, with its semicircular apse, ambulatory, and radiating apsidal chapels, but throughout in the restrained quality of its detail and the refinement of its ornamentation. Begun in 1522 by Juan Gil de Hontanow, who had already worked on the old cathedral, but had won his great fame on the new cathedral of Salamanca ten years before, it was practically completed by his son Rodrigo, aided by Cubillas, Juan Gil's old clerk of works. Rodrigo died in 1557, and the church was consecrated in 1570. Chapels were added by Rodrigo's successor, Martin Ruiz de Chartudi. The lantern above the crossing was raised by Juan de Mogauren in 1615. Five years later the

northern porch was erected, and Renaissance features invaded the edifice. Like most Spanish churches, it has been constantly worked upon, and never completed. The plan is good. The situation is magnificently impressive. The former Romanesque cathedral, consecrated in 1228, had perished by fire in the revolt of the Comunidades in 1520.

In the centre of the city, on the very crest of the hill, lay the only clearing within the walls. Here, at one end of the plaza, was the site of the convent mentioned by Emperor Charles, which had long sheltered the nuns of Santa Clara. They had abandoned it for other quarters, and the adjacent convent of San Miguel had become unpopular and was dwindling into insignificance. Both could thus in this most free and commanding location, give way to a new and larger cathedral, distant from what would always prove the rallying-point of civic strife. Following the mighty wave of revolt which had swept the city came a great receding wave of religious enthusiasm to atone in holy fervour for the impious act recently committed. Citizen and noble alike proposed to build an edifice which would be much more to the glory of Saint Mary than the shrine which they had so recently pulled down. Lords gave whole villages; women, their jewels; and the citizens, the sweat of their brows. We find in the archives of the cathedral the following entry by the Canon Juan Rodriguez:

"On June 8, 1522, by the consent and resolution of the Lord Bishop D. Diego de Rivera and of the Dean and Chapter of the said church, it was agreed to commence the new work of the said church to the glory of God and in honour of the Virgin Mary and the glorious San Frutos and all saints, taking for master of the said work Juan Gil de Hontanow, and for his clerk of the works Garcia de Cubillas. Thursday, the 8th of June, 1522, the Bishop ordered a general procession, with the Dean and Chapter, clergy, and all the religious orders."

The view we give from Mr. Gade's book, by the courtesy of the publishers, if it lacks the interest of Mr. Brewer's poetic delineation, conveys, perhaps, more clearly the architectural effect of the exterior.

Taken as a whole, the facade is bald and void of charm. It is neither a masterpiece of faulty, of a certain strength, but without interest or merit. It is logically subordinated by five pronounced buttresses, marking the nave, side aisles, and outer row of chapels. Their relative heights and the lines of their roofing



SUMMER-HOUSE, NETHERSWELL MANOR.—Mr. E. GUY DAWBER, Architect.

(From "The House and Its Equipment.")

exhausted, and urging as our chance of redemption in this respect a hope for a virile school of colour decoration grounded on a robust attitude, concerned with broader considerations, and eager to use failures as stepping-stones to higher efforts, and as a necessary means of education. Mr. F. W. Troup, in a chapter on "Plaster-work," shows some excellent examples, which are more useful than involved euphonies. Mr. J. A. Bretch, F.S.A., follows with a descriptive note on "Wood Paneling," which, where there are no pictures to be hung, forms a highly satisfactory method of covering a wall, and so comes in the cynic with his inquiry, "What kind of a picture is yours if it cannot hold its own against lifeless wood?" "Architectural furniture" concerns fittings and the like, from the pen of Mr. C. H. B. Quennell, who likewise illustrates many forms of fireplaces, old and new. "The

Wooden Chimney-piece," by Mr. A. T. Bolton, "The Billiard Room," by "L. W.," also a longer essay by the editor on "Libraries and Bookcases," "the children's attic" of the ideal house coming in for illustrations and notice. "The Grand Piano," and "Modern Furniture" chapters hardly lead to any definite conclusions, the examples given, though excellent enough, each in turn seeming so conflicting, and this fact gives emphasis to Mr. Quennell's remark that the "time has come when we should no longer continue to fill our homes with a medley of indifferent antiques or machine-made reproductions of the same." The specimens represented of modern work do no doubt speak to the fact that this kind of thing is "a serious branch of the applied arts," but at the same time, unquestionably there remains a want of coherence, and also some rather queer-looking pieces

occur. Mr. Basil Oxenden writes well of "How to Choose Old Furniture," with attractive specimens. "Floor Coverings," "Water Supply," "Sewage Disposal," "Kitchens and Sculleries," "Refrigeration," "Game Larders," "Ballrooms," "Lighting Systems," and "Water Power Installations," show the encyclopaedic scope of Mr. Weaver's volume, including air, gas, and steam heating, and telephone installation. "Dry Rooms," by Mr. W. H. Billiak, and "Lighting Conductors," are, presumably, by experts. Garden houses and garden houses follow. From the last-named chapter, by Mr. Inigo Triggs, we have chosen a first-rate summer-house designed by Mr. E. Guy Dawber for Netherswell Manor. The old garden buildings shown in the book are well-known ones, and very charming they are. Some "Outdoor Dining Rooms," by Mr. C. E. Mollwey, are of light



AN INTERIOR OF HALL AND BAY.—MR. EDWIN L. LUTYENS, Architect.
(From "The House and Its Equipment.")

fully drawn "The Art of Treillage," "Perzolas," "Orangeries," and "Glass Houses," are dealt with by Mr. H. Avray Tipping whose compilations of illustrations in each case are admirable, while Mr. Starkie Gardner shows a variety of beautiful old iron gates, and other examples of smith's work. The statues on gate piers and out-buildings supply more photographs of an appropriate kind. The last chapter is on "Reinforced Concrete" used for cattle stalls and stable divisions, reservoirs, and culverts, contributed by Mr. Kempton Dye, M.C., secretary of the Concrete Institute.

Our second illustration is of an interior, by Mr. E. L. Lutyens, showing a hall bay and screen doorway, but its location is not named. It will thus be seen how very comprehensive this detailed volume will prove to be to those who consult its pages, and furnishing in a concise manner many suggestive pieces of information in the general way only obtainable from quite a library of books. The price is fifteen shillings net.

and it is handsomely published in canvas covers, gilt, excellently printed, and well turned out.

An island site in St. Pancras, bounded by Judd-street, Tonbridge-street, and Biddborough-street, has been let by the trustees of the Tonbridge School estate, on a 99 years' lease, at a ground rent of £640 per annum, the lessee agreeing to expend £47,000 in the erection of new buildings.

The Harbour Commissioners of Port Seton have approved of a revised scheme for increased accommodation estimated to cost £6,000. The proposal shows the north sea-wall of the inner harbour extended 130ft. east; the west sea-wall has a portion cut off its east extremity, and a wall going off at right angles for about 130ft.; an opening between the extremity of this elbow and the east end of the harbour-wall extension facing north forms the new entrance. It is proposed to clear out the inner basin (which is divided from the outer, or western, basin by a stone pier) towards the east, throwing the space occupied by sheds and workshops into the harbour basin accommodation. The Government grant to be given is £4,600, leaving £1,400 to be raised.

NEW WAREHOUSE AND OFFICES, CAMBRIAN PLACE, SWANSEA.

These premises are now in course of construction near the docks. The offices of the firm are on the ground floor, and the other floors, including a large basement, are used for the storage of goods. A cartway leads from the street into a yard at the back for loading up waggons. A block of stables adjoins the yard. The buildings are faced with local face bricks and Portland stone dressings. The heating is by electricity, and there is an electric lift service to each floor. Messrs. J. and F. Weaver, Swansea, are the builders, and the architects are Messrs. C. S. Thomas Meager and Jones.

Mr. Dan. H. Price, Frisco Villa, Mountain Ash, has been appointed surveyor and water engineer by the Bedwellty Urban District Council, at a salary of £225 per annum.

The libraries committee of the corporation of Portsmouth have decided to recommend the purchase of the nursing home in Brunswick-road at a cost of £7,000 for an art-gallery and school clinic and overseers' offices.

NEW WAREHOUSE IN CAMBRIAN PLACE FOR MESSRS THORNETT & CHIVERS.

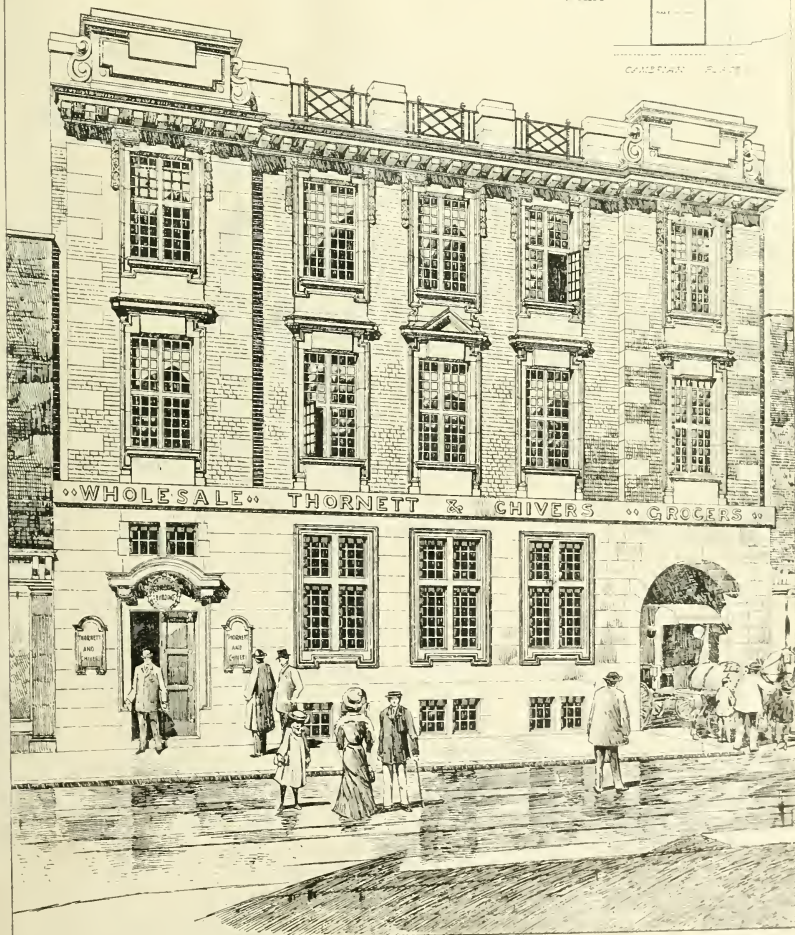
MESS^{RS} C S THOMAS MEAGER & JONES
ARCHITECTS.

Block
Plan.



WINDOWS
FACED

CAMBRIAN PLACE





NATIONAL MUSEUM OF WALES. (View from S.W.)—Messrs. SMITH and BREWER, Architects.

THE CONVENTION OF THE AMERICAN INSTITUTE OF ARCHITECTS.

The forty-fifth annual convention of the American Institute of Architects was held on December 12, 13, and 14, at Washington, D.C. Mr. Irving B. Pond presiding. More than one hundred delegates, representing the various Chapters, attended. In his opening address the president briefly reviewed the year's work.

Declaring that opportunities for the conservation of natural resources exist in the National Capital fully as great as in other sections, the chairman, Mr. Cass Gilbert, in presenting the report of his committee, urged that the banks of the Potomac River should be preserved undisturbed as memorials to the early days of American national life.

The committee held that all the historic estates that do not already belong to the Government should be speedily purchased, even if they are not to be utilised for park purposes for centuries to come.

In presenting the report of the Committee on Education, Mr. Cram discussed the subject of State licensing as compared with Institute licensing for architects. He urged that Institute membership should be accepted by all licensing boards as satisfactory evidence of fitness for practise as is now done in New Jersey and Colorado. The committee believed that there should be a broadening of the education of the engineer, so that his work may be a closer touch with the architect.

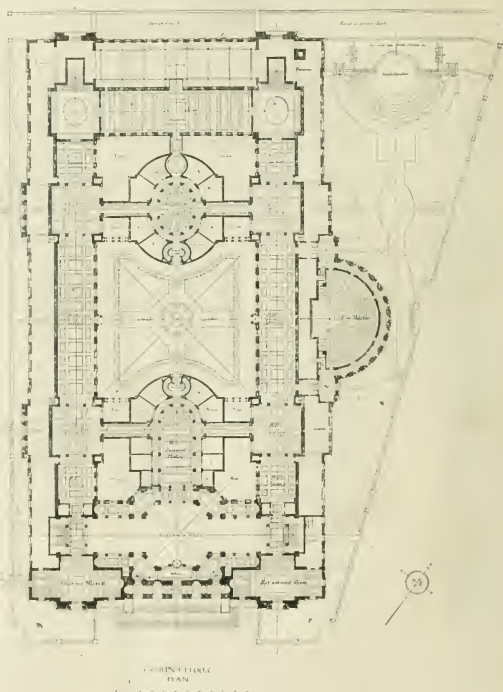
Supplementing this report the Committee on Education held a conference in the evening, participated in by delegates from the Chapters. The object of this conference was to take such action as might be found desirable to coordinate the educational interests of the country.

The report of the Board of Directors showed a very gratifying increase in membership. It endorsed the Park Commission site for the Lincoln Memorial, and regarded as important to the best interests of Washington the scheme to substitute a national roadway for the monument. A large part of the report was devoted to town planning, and much emphasis was laid on the prominent part it is bound to assume in architectural practice in the future. Under the head of unprofessional practice the report made public the names of members of the Institute whose violations of the code it had been necessary to censure.

The report of the Standing Committee on Urban Design, presented by Mr. Frank Miles Day, chairman, was a very full and clear exposition of the important subject.

Mr. Arnold W. Brunner of New York, in presenting the report of the Committee on Text Planning, gave a chronological review of the developments of the past ten years in town planning. He referred to the fact that Senator McMillan, on the nomination of the Institute, appointed the Park Commission for the National Capitol, whose work

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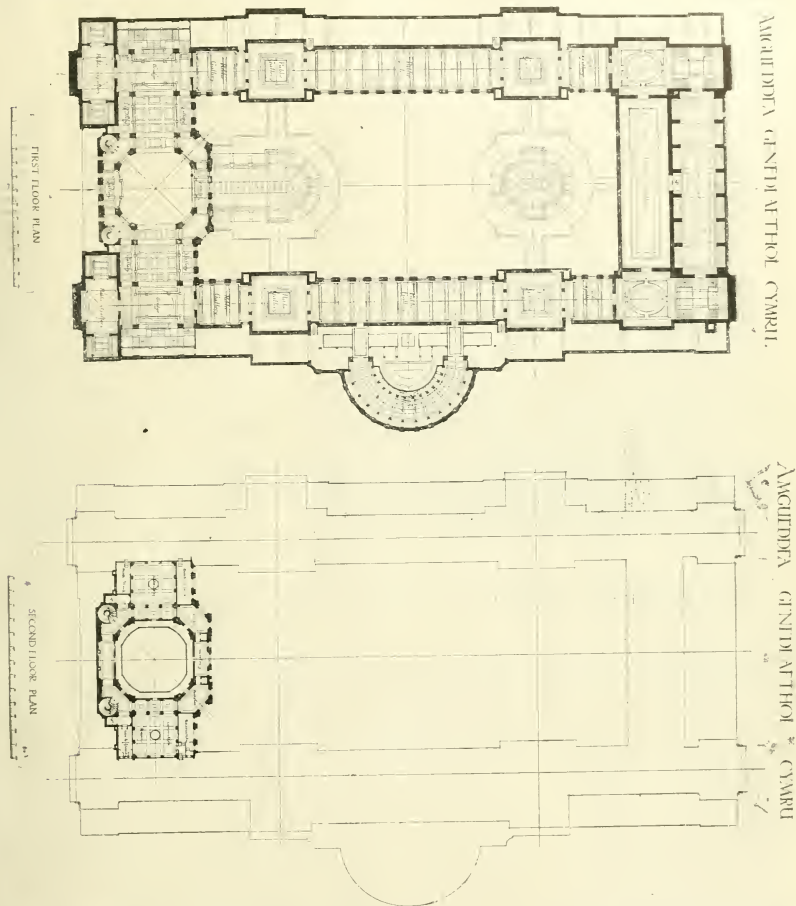


has received such wide recognition that it has established the importance of the trained judgment of the architectural profession in any scheme for city improvement. The committee presented a recommendation that an effort be made to obtain either State or National laws to effectively carry out judicious systems of town planning.

Mr. H. A. Gardner, Assistant Director of the Institute of Industrial Research, read

a paper on "Recent Developments in Paint Technology." Mr. C. C. Zantinger addressed the convention on "City Improvement," and Mr. J. Milton Dyer, in an address on the subject of "Effect of Competition on Design," paid a high tribute to the increasing architectural excellence of Government buildings.

A feature of the opening session was the presentation to the Institute of the table upon



THE NATIONAL MUSEUM OF WALES, CARDIFF.

As will be seen by comparing the perspective view with that given by us in our issue of April 1, 1910, the south front of this building has been, in a measure, redesigned, the chief alterations being the increase in the height of the dome to 96ft., whilst the columns at the main entrance and the corner pavilions have undergone some change. The internal arrangements have also received most careful consideration, and the chief alteration in the plan from that originally submitted has been the raising of the height of the entrance-hall by carrying the whole of it up two floors, the central portion, under the dome, being still higher—namely, 88ft. This has necessitated the provision of a second floor at the south end of the building to contain the committee-room, library, and offices, all of which were displaced by the enlargement of the entrance-hall. This arrangement has the advantage of allowing complete circulation of the visitors on the first floor as

which President Madison signed the treaty of Ghent. The presentation was made by the San Francisco Chapter. This table was in the Octagon, the present headquarters of the Institute in Washington, at the time President Madison had his residence there, following the burning of the White House by the British. The historic piece of furniture was sent to San Francisco in 1889. It was secured by the San Francisco Chapter, and through the good offices of this organisation, now finds a final resting-place in the Institute's official home.

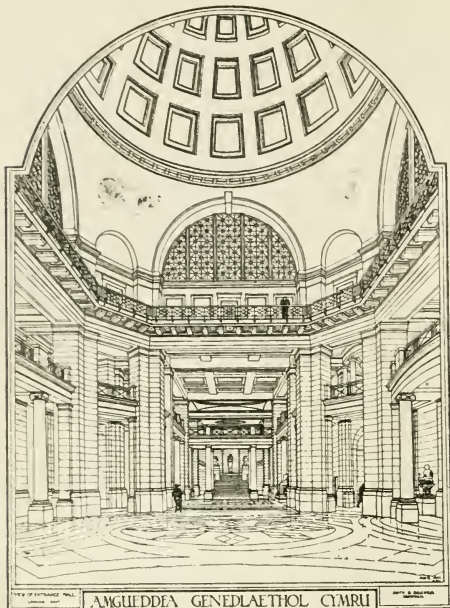
Alterations are being made to the workhouse at Aylsham, Norfolk, and a new laundry is being added to the buildings. The architects are Messrs. Morgan and Buckingham, of Norwich.

At Holner, a rapidly growing suburb of Hereford, a site for a future church has been secured, and on a part of it a large mission-hall, with a small chapel, vestry, mortuary, and scouts' room has been built to relieve the parish-room.

well as on the ground floor. The department for Welsh natural history has also been redesigned, and it is considered that it will be much better suited to its purpose in the form now adopted. A perspective view of the entrance-hall is given.

The positions of the boiler and engine-houses have been altered, and it is now proposed to place these clear of the building at the north-east corner of the site. An open-air amphitheatre has been planned near the boiler-house for the performance of country dances, folk-songs, etc.

In order to bring about certain alterations it was necessary that the building should be built up to the boundary of the site on the north, and the council is pleased to state that, with the generous consideration which it always receives from the Cardiff City Council, permission to do this has been granted, and a lease has been given of a further strip of ground, to be used as an accommodation road. These modifications have required most careful consideration.



tion by the council, building committee, and Messrs. Smith and Brewer, the architects, who are sparing no trouble in securing the best possible design, and it is considered that the plan now adopted will prove in every way satisfactory. The plans are reproduced herewith.

Tenders were in due course invited for the carrying out of this work, the following being received and considered on July 21, 1911—

| | |
|--|--------------|
| Airds, Ltd., London, | £40,079 18 7 |
| Tucker Bros., Cardiff, | 38,850 0 0 |
| Knox and Wells, Cardiff, | 35,150 0 0 |
| Building Construction Co., Ltd., London, | 31,860 0 0 |
| Blake, W. E., Ltd., Plymouth, | 24,850 0 0 |
| Minter, F. G., London, | 24,823 0 0 |
| McLaughlin and Barry, Ltd., London, | 24,850 0 0 |
| Allan, J., Ltd., Cardiff, | 23,734 10 10 |
| Willcock, H., and Co., Wolverhampton, | 21,750 0 0 |
| Turner, E., and Sons, Cardiff, | 21,063 0 0 |

That of Messrs. E. Turner and Sons was accepted by the council, and work commenced on the site on September 1, 1911.

The fourth Annual Report by the Council to the Court of Governors, from which we are kindly permitted to reproduce the illustrations given, is a continued record of notable progress towards the fulfilment of the purposes of the museum, of which Cardiff and the Principality will have good reason to be proud, thanks in no small measure to the able administration of Mr. Williams Evans Hoyle, M.A., D.Sc., the Director.

GRANTS FOR ROAD MAINTENANCE.

The Road Board have circulated the County Councils of England and Wales with reference to applications for advances towards works to be carried out during the next financial year, and have communicated to them a minute of the Board with reference to road crust improvements.

The purpose of the Minute is to set forth generally the practice which the Board pro-

pose to follow in making grants to county councils and other highway authorities in respect of such improvements of existing roads as consist of works designed to strengthen and improve the road crusts.

The Development and Road Improvement Funds Act, 1909, expressly excludes from the category of improvements all works which fall within the description of "ordinary repairs essential to laying a road in a proper state of repair."

The maintenance or repair of any road must necessarily involve the recoating or renewal from time to time as required of the wearing surface or surface crust which is worn away by the effect either of traffic or of weather and natural deterioration or decay. It is necessary therefore to draw a distinction between works which consist of (1) Strengthening or thickening the sub-crust or foundations, both of which may be included in the term, "strength crust," or carrying out other works designed to permanently strengthen the road. (2) Substituting better or more durable material for inferior material previously used in renewals of the strength crust or the surface crust. (3) Laying down and steam rolling a wearing surface or surface crust in renewal of a damaged or worn out surface crust.

In making contributions to road-crust improvement work, the Board deem it necessary to confine grants to some proportion (75 per cent. is the proportion usually given) of the extra cost of improvement, after provision out of maintenance account of the cost of renewal, with proper materials, of the surface crust which requires renewal.

In the case of roads which have to carry any substantial volume of modern traffic the practice of carrying out periodical renewals with inferior material, such as gravel, flints, or soft limestone, although such material may be comparatively cheap in first cost, and binding with mud, is probably wasteful, and results in the total cost of periodical

renewals of surface crusts, spread over a term of years, being greater than it would be if, in effecting renewals, superior stone or other good surfacing material, treated with some kind of bituminous material for binding or for surface protection were used. The Board are therefore desirous of assisting not only the strengthening of sub-crusts and foundations, but also the improvement of surface crusts by the use of superior surfacing material, and by the substitution of bituminous-bound for water-bound material.

It has now been so fully established that bituminous binding will substantially increase the life of wearing surfaces, that in future, in dealing with surface-crust improvements, the Board intend to take into consideration the effect of the improvement in reducing the cost of future periodical renewals, which are properly chargeable to maintenance account.

The effect of this will be in some cases to reduce the proportion of the extra cost for which grants can be made, or to render it necessary to introduce into some grants a condition that, in the event of the extra cost of the improved surface crust being in fact wholly or partially recouped by the extra life of the surface crust, the highway authority will spend upon other permanent road improvements in their district an amount equivalent to the grant made by the Board.

The Board will continue to make grants and loans to road-crust improvements on applications for such grants or loans being made by county councils and other highway authorities. They will also continue to make contributions to the cost of surface tarring in cases where such treatment is suitable; but such contributions, except in cases where the grant is in continuation of a grant already made, for a first application of surface tarring will not, except under special circumstances, exceed from 50 to 75 per cent. of the cost.

General directions for surfacing an existing road with steam-rolled water-bound macadam have been prepared by the Advisory Engineering Committee, and have been issued under the authority of the Board by Messrs. Waterlow and Sons (Limited), London-wall, London, E.C., from whom they may be obtained, price 6d., post free.

During the months of October, November, and December, 1911, the Road Board, with the approval of the Treasury, have made advances amounting to £33,787 from the Road Improvement Fund to county councils and other highway authorities as follows: For the improvement of road crusts (including grants towards tar, macadam, etc., and surface tarring), £29,045; for road widenings and improvement of curves and corners, £4,223; for road diversions, £510.

The total grants up to December 31 are as follows: For the improvement of road crusts, £347,407; for road widenings and improvement of curves and corners, £50,436; for road diversions, £17,094; for construction and improvement of bridges, £13,897. Advances by way of loans have also been made to the sum of £1,734.

In addition, grants amounting in the aggregate to £490,413 have been allocated to highway authorities towards works of improvement of which the details are still under consideration and discussion.

A training college for teachers is about to be built at Caerleon from plans by Messrs. Alfred Swash and Son, of Newport, Mon. The outlay will be about £26,000 exclusive of site and furnishing, and the contractor is Mr. F. Bond, of Cardiff.

A new sewerage scheme for Eglestham, Renfrewshire, has just been completed at a cost of £2,500, and has been formally opened. The works were designed by Mr. J. G. Bennett, Paisley, and constructed by Messrs. Wilson, Kinnend, and Marr, contractors, Glasgow.

Early in the New Year the additions which have been made to the Royal Military College at Sandhurst will be ready for occupation. They have taken about two years to complete, and have cost nearly £250,000. They consist of two wings for the accommodation of six companies of cadets.

CURRENTE CALAMO.

In his lecture to the Institute of Builders, Mr. A. W. Gattie well emphasised some of the scandals of present railway administration to which we referred on this page in our issue of December 15 last. Wasteful railway management is, as the lecturer said, to be blamed for the present high railway rates. Who can wonder, when we have 1,300 railway directors who absorb £650,000 annually? On the board of one of our railways the age of six directors averages 77; another list of six gives the average age of over 88. Transport rates in this country are the highest in the world, and in many cases for parallel services are double the German rates. Our railway goods yards are a jumble. There are seventy-four of them in London, and in order that they may communicate with one another there are 700 trains run daily. If a central goods clearing-house were established in London, then 700 trains and seventy-four goods yards could be dispensed with, and the work would then be done five hundred times quicker than at present. There would be no need of at least two-thirds of the present number of waggons.

Comparing the cost of the present methods with his suggested system for a London goods clearing-house, the lecturer took as an example a load of 100,000 glazed bricks, weighing 345 tons, to be conveyed from Yorkshire to London, a distance of 200 miles, in fifty truck-loads, having a gross weight of 690 tons. The present charge was 11s. 8d. a ton, or £201 5s., or, including loading, unloading, and delivery charges, a total of £257. If this load were sent in seven large truck-loads the loaded weight of the trucks would be 531 tons only, which, with an increase of speed of the train, would enable a saving of £87 15s. 10d. to be effected in haulage, while the train would be able to proceed into the clearing-house intact, thus obviating the necessity of splitting it up in a shunting yard. The lecturer presented figures which tended to show that the total cost of bringing the bricks from Yorkshire to within two miles of the clearing-house was £142 9s. 4d., or a saving of £114 10s., equal to 45 per cent.

Our railway goods stations, moreover, are, as Mr. Gattie said, designed and built in a fashion which is simply ludicrous, and excites the derision of every American visitor. They are furnished with a jumble of sheds dotted over them from one end to the other, and they are too unwieldy and scattered to allow intercommunication of parts. The creation of a London goods clearing-house, of which the various parts would be in immediate electric intercommunication with each other, to take the place of the seventy-four goods stations in London, from which any parcel, bale, or load could be taken from any spot and conveyed to any other part of the building, in some instances in a few seconds and in others in a few minutes, would doubtless further despatch; but we doubt whether the railway companies would let the public share the saving effected. Nothing will really wake up the venerable gentlemen who take their £650,000 a year for knowing "how not to do it," but railway nationalisation.

The Royal Academy Winter Exhibition is too large, and embraces too many of the traditional works, which, however they may be

valued by their owners, have little interest either for the connoisseur or the intelligent layman. The descriptive list which, the Academy issues as a "catalogue," of course, warns the public that the attribution of the authorship of the pictures is entirely that of the lenders. One of these days, perhaps, it may occur to the authorities at Burlington House that a real catalogue embodying the opinions of trusted experts would be of lasting interest. Moreover, it would help, probably, to exclude rubbish from subsequent exhibitions. On the other hand, the better hanging of the pictures this year deserves recognition.

The devotion of three whole galleries to the works of the late Mr. E. A. Abbey seems rather a mark of gratitude for value received than the result of any real belief that their interest can possibly be long-lived. Of the scores and scores of drawings—most of them of the sort that might well decorate the room of a successful theatre manager whose revivals of Shakespeare they had helped—there is scarcely one that arrests intelligent admiration or repays study. Nor, truth to tell, do the pictures—clever enough, some of them, after a fashion. Who, for instance, can possibly regard "Columbus in the New World" (337) seriously? And why, one wonders, was the capacity manifested, within certain limits, for better things, as in "Richard and Lady Anne" (406), sacrificed to staid unreality so frequently?

The appropriation of the first room to the works of Reynolds, the Academy's first President, will displease nobody. It is the most satisfying and suggestive contribution to the show. Not only are there some of the best-known, but some of the least familiar examples, except as far as our knowledge of them is derived from engravings. There are eight of the allegorical subjects Reynolds did for the New College window at Oxford, his own portrait which he gave the Academy, and thirteen other portraits, those of the Brummel boys, lent by Lord Iveagh, being the most delightful, as they will probably prove most attractive.

The second room is a much more mixed collection. There is one really rare work, Giovanni Bellini's "St. Francis" (41), which we have not seen for more than fifty years—the last time, we think, at Manchester. Of all the Italian examples on view, it is beyond doubt the finest. The five Rembrandts—we suppose "The Holy Family" (50) is a Rembrandt!—will attract, and so, we suppose, will his "Portrait of a Cavalier" (81) in the Watercolour Room, and Rubens's "Henry Wriothesley, Earl of Southampton" (88). The best thing in the Third Gallery is Gainsborough's "Hon. Edward Bouverie" (94). Rubens's "Holy Family," owned by the Duke of Devonshire, has the place of honour at one end of the room. The three small Turners (89, 117, and 127) are not very striking. Among the Hogarths, in Gallery IV., which are genuine—and some surely are not—three fine ones lent by Colonel Noel (114, 151, and 152), all practically unknown. The two splendid Caravaggios in this room are fine examples.

Among the pictures that simply waste space one really wonders why such things are hung as the "Fortune," by Marcello Venusti,

or "The Woman Taken in Adultery," by Bonifazio, and "The Centurion at the Feet of Christ" by Paris Bordone; or the two allegorical subjects ascribed to Tintoretto, bad alike in composition, handling, and draughtsmanship, and lifeless and feeble in colour. Or the large group by Lely, "James, Duke of York, afterwards King James II., with his Wife and Daughters," except as an illustration of the practice of a painter who was not always incapable. Nor are these by any means all the instances of inability of the Academy to choose work worth exhibiting.

The consent of the Chancellor of the Diocese of Llandaff on Tuesday to the immurement of the cremated ashes of the late Mr. A. J. Williams, formerly M.P. for South Glamorgan, in the north wall of Cychurch parish church, seems to us very justifiable. Of course, care should always be taken, as in the case of "Inne v. Gray" (1894), that church walls shall not be weakened. In that instance the Chancellor directed the remains to be interred in the floor. At present, and while a faculty has to be obtained in every case, such decorous disposal of the dead seems likely to remain the luxury of the well-to-do. Some day, we hope, it will be the right of all, and that the hideous cemeteries and the travesties of the cemetery mason will disappear, and the remains of the departed may once more rest in the custody of the guardians of the common faith, revered by, and innocuous to, the living.

Mr. Edison proposes to make concrete furniture. He declares that it could be done at less than half the price of wood. The surface can be polished and stained to look like any kind of wood! Mr. Edison is using a concrete cabinet for his phonographs, and the surface is said to be like enamelled wood, coloured white and gold. The greater weight is admitted; but, according to Mr. Edison, it would only be one-third greater than that of wood, and he says that he can reduce this to one-fourth. Probably; but we confess the hospitality of a man who asked us to stretch our legs under his concrete dining-table would hardly cement our friendship!

A much more sensible and really most useful adaptation of ferro-concrete is that described by Mr. W. J. Bremner Davis in last Friday's *Engineering*. It is curious, as he suggests, that the method of calibration, in combination with pinhole images and a series of parallel lines on a flat surface, does not appear to have been applied to sundials. To facilitate this, Mr. Bremner Davis has devised a dial which he names the "B.D. Time-Box," which is not patented, neither is it made for sale. But it can be made in ferro-concrete by an amateur for a few shillings, and it will prove so useful that we have taken the liberty to reproduce it in our other paper, the *English Mechanic*, which is probably read by fifty times as many astronomers and astronomical students and amateurs as ever see any other journal of its class.

At Bassano, in Alberta, a town which owes its existence to the C.P.R. and a wide-awake publicity agent, they have adopted a "slogan" with which to carry on an active advertising campaign. If at first blush the slogan may seem to verge on the profane,

it will at least achieve the object for which it was come—that of attracting attention. "Bassano—the Best in the West by a Dam Site," is the watchword with which this town expects to "draw all men into it." The liberties the publicity agent has taken with the King's English may be partly condoned when it is considered that every lung within the vicinity of Bassano is being run on a big scale, especially the huge C.P.R. irrigation dam across the Bow River, which is one of the biggest engineering enterprises now being carried on in the Dominion.

COMPETITIONS.

SCHWYZ.—For the national monument to be built at Schwyz, on Lake Lucerne, in commemoration of the Battle of Morgarten (November 15, 1315), the design by M. E. Zimmermann submitted in the limited competition, under the title "Urschweiz," has been selected from the five sent in. The chosen design provides for an open space in the foreground, to be used for public festivals. This open space is to be surrounded by rows of trees and adorned with twenty-two statues. Behind it, on a terrace, a huge statue of Liberty is to rise, and behind the statue a building of considerable breadth will be stood, the elevations being purposely kept low so as not to hide the view of the mountains behind. The statue of Liberty will be placed in a niche in the main building, the niche being ornamented with the representation of a geological tree showing the origin of all the component parts of the Swiss Confederation. The wings of the main building will bear bas-reliefs illustrating the decisive battles of the Swiss wars of Independence—Morgarten and Sempach. The interior will contain halls with niches for sculptures. The mural paintings and the designs of the ceilings will represent scenes from Swiss history and episodes in Swiss civilisation, while the sculptures in the niches and along the corridors are to be busts and statues of great Swiss men.

PROFESSIONAL AND TRADE SOCIETIES.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE LICENTIATESHIP.—We are desired to mention that it is absolutely necessary that all applications for election to the class of Licentiates be in the hands of the Secretary of the Royal Institute by April 30, 1912. No further election to the Licentiateship can take place after June next; but as it takes some time to examine the applications, it is essential that all the papers be sent in by April 30 at the very latest.

Sir John George Barton has resigned his post of Commissioner of Ireland and Chief Boundary Surveyor of Ireland. Mr. Percy C. C. Chief Engineer, Inspector to the Lord Government Board, will succeed him. The salary attached to the post is £1,500 a year. Sir John Barton has been Commissioner of Valuation since 1892. He was formerly a consulting engineer to H.M. Board of Works in Ireland.

Mr. Walter Copland Kerrie, Ph.D., who died on Thursday last week at the great age of 97, was a well-known writer on classical archaeology, especially upon Greek and Roman sculpture. The collection of casts from antique statues which he collected was mostly a special feature of South Kensington Museum, was collected through Mr. Kerrie's exertions. When the museum was rebuilt the casts were removed to the British Museum.

The Professorship of Fine Arts in the University of Cambridge, in the Foundation of Mr. Felix Sackville, is vacant by the resignation of Dr. Charles Waleston, and the Board of Electors will meet to elect a successor on February 20. The Professor will be elected for the first time, be elected for a period of three years, and will receive a stipend of about £340 per annum. He is not required to reside in the University. Candidates should send their names and testimonials to the Vice-Chancellor, St. John's College Lodge, on or before February 10.

LEGAL INTELLIGENCE.

MEASURES BROTHERS' DEBENTURE HOLDERS. The Court has sanctioned a first distribution to Measures Brothers' (Limited) debenture stockholders of 10s. in the pound on account of the assets of the company. When the company was formed in 1893 debenture stock was issued to the amount of £27,000, upon which no dividend or interest has been paid since 1909, when a receiver was appointed. The company was appointed to carry on the business, and, if necessary, realise the assets. Four months after the receiver took possession, the Court ordered the company to be compulsorily wound up and ordered a receiver to be appointed. The contributors appointed the Official Receiver in the Companies Winding Up Department as liquidator, but for the purpose of realising the assets and shops he was building in the debenture holders' receiver who is still conducting the realisation. Most of the assets have now been realised, and it is expected that 15s. in the pound may eventually be realised.

BUILDERS' ACTION AGAINST CORPORATION.—Verdict against Doncaster Corporation. At the Doncaster County Court, on Wednesday, January 3, Judge Allen delivered judgment in the action brought by him a fortnight ago, 889, last year, in which Mr. Abner Doncaster, the borough surveyor, had taken the Corporation to the County Court, alleging to have been sustained by him through breach of the defendants of an agreement for the supply of water for building purposes for two years and shops he was building in Doncaster in June last. Recently the corporation commenced a campaign against the builders of Doncaster for illegally using water. Mr. Carr was one of those proceeded against, and the proceedings were taken in a summary way. The prosecution. At the previous county court it was stated Mr. Carr was obtaining water from the tap of a house adjoining those he proposed to build. He received notification that this was illegal. He then went to the water department, filed up a form of application for the supply of water, and paid 30s., the amount of the charge. The borough surveyor subsequently stopped the supply until after proceedings had been taken against the plaintiff. His Honour said the question was whether the borough surveyor was justified in law in refusing to supply the water to the plaintiff until after the proceedings had been taken. Section 10 of the Doncaster Corporation Waterworks Act of 1873 gave the corporation power to supply water to any person, other than for domestic purposes, on such terms and conditions as might be agreed upon. If Mr. Procter, the clerk whom Mr. Carr saw, was the agent of the corporation to make a contract for the supply of water, then he was of opinion such contract was made to the plaintiff for the purpose of building two houses and shops at Benlithorpe. It was contended on behalf of the defendants, that Mr. Procter was a mere clerk, unauthorised to contract, and was not their agent. On that the evidence was that he was held out as a person who had authority to make agreement on behalf of the corporation for the supply of water for purposes other than domestic, and they could not say he was not their agent. The corporation retained the money paid by the plaintiff. He held the defendants should have supplied the water on June 15, whereas they did not until June 27. He found there was an agreement binding on the defendants, and assessed the damages at 20s. The appeal was allowed, the plaintiff to be repaid with costs under Scarsdale. Leave to appeal was granted on the application of Mr. Tovey, town clerk.

The "Warburton" letters on Town Planning will be delivered at the Manchester University as follows: Monday, January 22, at 8 p.m., Mr. C. H. Newell, New College, Oxford; Tuesday, F.R.I.B.A., Monday, January 22, at 8 p.m., The Town Extension Plan by Raymond Unwin F.R.I.B.A.

The death occurred on Saturday at his residence, Donset House, Saffron Walden, of Mr. Joseph Bell, J.L., a senior member of the firm of Messrs. Bell and Sons, contractors, of Saffron Walden and Cambridge. Mr. Bell, who was 78 years of age, had been mayor of the town eight times. For many years he had been president of the Cambridge and District Building Builders' Association, and a Justice of the Peace for the county of Essex and for the borough of Saffron Walden. He was the founder, and, until the death of Mr. Joseph of New College, Oxford, of the Cambridge and District Building Builders' Association, Limited, contractors and timber-merchants, King's Lynn, and one of the founders of the Midland Cement Company, Cambridge.

Our Illustrations.

SEGOVIA CATHEDRAL, FROM THE SOUTH.

Segovia Cathedral, erected between the years 1522 and 1577, was the last great Mediaeval Gothic building constructed in Spain. It was designed by the Spanish architect, Juan Gil de Hontañon and his son Rodrigo. Externally, the domed tower and centre dome, being conspicuous, give a Classical appearance; but apart from these two features, the building is thoroughly Gothic in detail and character. This cathedral and the cathedral at Salamanca (carried out by the same architects) group up and crown the towns in a great golden mass of stone, and owing to their situations are effective even beyond their vast proportions. Internally the grand scale is fully carried out. The arches of the nave rise almost to the clerestory windows, a band of panelled tracery dividing them; the columns are ingeniously divided into lines, giving richness without destroying breadth, and the seven-sided apse, both internally and externally, is fine rich work. The choir is in a peculiar situation, resting on a ship-shaped rock surrounded by the Sierra Gaudarrama. It is full of Mediaeval and Renaissance domestic architecture, and amongst other ecclesiastical buildings there are thirty churches which are in part Romanesque.

HENRY C. BREWER.

ROYAL ACADEMY SILVER MEDAL CARTOON OF A DRAPED FIGURE.

ACRIPPINA CARRYING THE ASHES OF GERMANICUS.

The daughter of M. Vipsanius Agrippa and Julia, daughter of Augustus; she married Germanicus and accompanied him in his campaigns, and, on his sudden and suspicious death in Asia, carried his ashes, with dutiful affection, to Rome. The esteem in which she was held by the people made her later the heroine of a play, and she was banished to the island of Pandateria, where she died by voluntary starvation three years later.

MADLINE EMILY GREEN.

[We have already alluded to Miss Green's excellent figure here reproduced direct from the large cartoon, which merits warm commendation, and it certainly won the prize with unqualified justice.]

"WINTER": ROYAL ACADEMY SILVER MEDAL DESIGN FOR THE DECORATION OF A PORTION OF A PUBLIC BUILDING.

Miss Margaret Lindsay Williams, of St. John's Wood, sends us the following descriptive note respecting this scheme, for which the Council of the Royal Academy last month awarded her the Silver Medal in this competition:—"The first figure to the left of the design is Nand, the boy who carried the sword of Destruction to Winter, the dark figure in drapery. Just beyond is a skeleton symbolising decay. Next to Winter comes a little figure of Love, with warm red wings, suggesting that Love is always young even in the winter of life. Then come the winds, and below these figures, in the distance is a ruined city, with its columned temples fallen in decay. Almost in the centre of the picture, surrounded by masses of fruit, is the kneeling figure of Autumn bidding farewell to the earth. Behind this figure is Life kissing the hand of Death in winter, followed by a group of figures, and the reclining figures on the ground are Spring and Summer asleep. At the extreme right is Persephone going downwards and being received by Pluto for her three months sojourn in the lower world." We shall give the cartoon of the figure of "Winter" in a large scale at an early date. We noticed this fine example of design and draughtsmanship when we reviewed the various competitive works shown at the Royal Academy during December, and this notice will be found in our issue for the 15th ult., when

we reported Sir E. J. Poynter's presidential address. Miss M. L. Williams also won the Gold Medal for historic painting—"The City of Refuge"—and so obtained the Travelling Studentship of £200.

"THE PIED PIPER OF HAMELIN": EXECUTED DESIGN FOR A STAINED WOOD PANEL. NATIONAL COMPETITION EXHIBITION, 1911.

The verse incised below the lunette panel, here photographed direct from the executed work, serves as a descriptive text of the scene representing the children emerging from the gateway in the old city walls, leaving their play and their way to school to follow the magic music, as in the well-known story. Miss Doris M. Lee won a place of honour in the competition for this work.

"LONDON."

SCHEME FOR A CONTEMPORARY MURAL DECORATION.

This is an allegory representing the different types that go to make the heterogeneous crowd of citizens of the present-day London, with the river representing the wealth of commerce, the scene being crowned by England's great national cathedral, St. Paul's Cathedral. GERALD MOIRA.

ENGLISH CATHEDRAL. KHARTOUM.

The precarious character of the site, the limitations of building materials locally obtainable, and the nature of climatic conditions rendered the problem of erecting such a church as this very difficult of solution, coupled as it was with the need of planning a building convenient to either large or small congregations. The site is in the Khedive Avenue, and is a parallelogram in shape, of convenient extent, close to the gardens of the Palace and near the Gordon statue. The house for the clergy is situate at the eastern end of the Cathedral precincts. Although the land is level, it is necessary to excavate to raise the building on a terrace some two feet high, and this was done for the exigencies of the climate. The upkeep of the few shrubs and flowers planted in the churchyard will be maintained, like the grass, by means of water-tubes connected with the irrigation supply of the Palace brought from the Nile for the Royal gardens. The plan of the Cathedral is based on a Latin cross with correct orientation. Both the nave and choir are 25ft. wide, with narrow aisles, or passages, round, giving a total width of 45ft. The south transept is to be used as a morning chapel for daily services, and on the north the Hero of Khartoum is to be memorialised by the "Gordon chapel," with various commemorative panels round the walls. The floor of the Cathedral is 4ft. higher than the exterior terrace, to meet local needs due to the climate: hence the broad flight of steps at the west end from the chief portal, leading to the narthex, which feature has been made after the fashion of Basilican churches. This door will be chiefly used for ceremonial occasions and State occurrences. The usual access will be supplied by north and south entrances by way of covered porches leading to the narthex, and this dual provision of doors will enable regulations to be made to meet the prevailing winds, which change with the winds, coming according to the seasons, either from the north or the south principally. Over the narthex is a western gallery. The baptistery will be located in a tower subsequently to be erected on the south side of the west end as a detached campanile, reached by a cloister from the narthex. An open woodwork screen will divide the chancel from the nave, made, like the stalls, from timber brought from the Bahr-el-Ghazal. There will be seven steps from the nave to the level of the sanctuary, with the traditional arrangement adapted to the full rendering of the ritual of the altar, from the eastern apse, the sedilia being provided one at each step. The ambulatory round furnishes a way for processions. Two circular stairs lead to the crypt below the choir, and are reached from the exterior,

for the provision of vestries, but so arranged that parish meetings may be held in the crypt on occasions, portable partitions being employed for this reason, so that they are removable. Plain brick vaulting covers the church between stone arches, and above the vaults the space up to the soffit of the roof is divided into shallow vessels to temper the heat and prevent the hot air outside from entering the building. Windows occur on each side, with hoods to moderate the sun's rays; and mats, in tropical weather, will be suspended on the inner face of the windows and saturated with trickling water from perforated pipes to moisten and cool the atmosphere, as the air enters the open windows. Wide eaves are provided to the roof. Electric light is used, and suitable methods of ventilation have been contrived. The building will seat six hundred, and chairs are employed. Sandstone of two colours, yellow and pale red, from the hill known as Jabel Auli, close to the White Nile, some twenty-eight miles distant, south of Khartoum, will have been brought by boats, and local small red bricks are used for the vaults. Local labour has been utilised. Soudanese marble furnishes the floor, and green glazed corrugated tiles cover the roof. Elaborate detail has been avoided. Mr. John Lattimer, a practical architect, who acted as clerk of the works, and Captain Done, R.E., Director of Military works for Soudan, has been supervising the work built from full-size details sent by Mr. Robert Weir Schultz, the architect, of London. The organ has special contrivances to cope with the sand difficulty, the particles of which are frequently charged rendering an ordinary built instrument quite unfit for use in Khartoum, and every part of the organ had to be constructed to obviate these difficulties. The Bishop of London is now on his way to Egypt for the consecration of the Cathedral, which will take place during the present month.

GARDEN FRONT. ST. JOHN'S COLLEGE, OXFORD.

The gardens of St. John's College are the first made by the University, though, of course, the grounds of Worcester College and New College compete for the premier rank. Taking the buildings of St. John's, and the extent as well as lay-out of its precincts, this college easily holds its own in this respect, and there is no more delightful spot in the city than the garden than these admirably kept five acres laid out by "Capability Brown" and Repton. The quaint stone Elizabethan oriels of the east front of the library of the college, overlooking the gardens, as seen in the accompanying view, greatly enhance the facade, which Inigo Jones partly modified for Lord was entered at a famous banquet in 1636 by King Charles, accompanied by the Queen, the Elector Palatine, and Prince Rupert, when a play was performed by the bishop, also his cap, and walking stick, which he used on his way to the scaffold. Sir Thomas White, Lord Mayor of London, founded St. John's on the site of St. Bernard's College in 1555. Christ Church purchased the property from the Crown in May that year, and the first president was appointed in the following month. White having augmented his endowments, a new charter was issued in 1557, the date of the present foundation. The hall was originally the refectory of the monks of St. Bernard, founded by Archbishop Chichele in 1457. His hall has been much modernised. The chapel, erected in 1530, was mutilated by the Puritans in the following century. In

Charles II.'s time, the chapel, in the style of the period, had a great staircase, happened in 1845, when it was employed to reassemble chapel more in modern style was supposed to be the original design. Inigo Jones's Renaissance quadrangle, the Tudor garden front, and the grounds constitute the chief beauty of St. John's College, Oxford.

HENRY VIII'S CHAPEL, WESTMINSTER ABBEY.

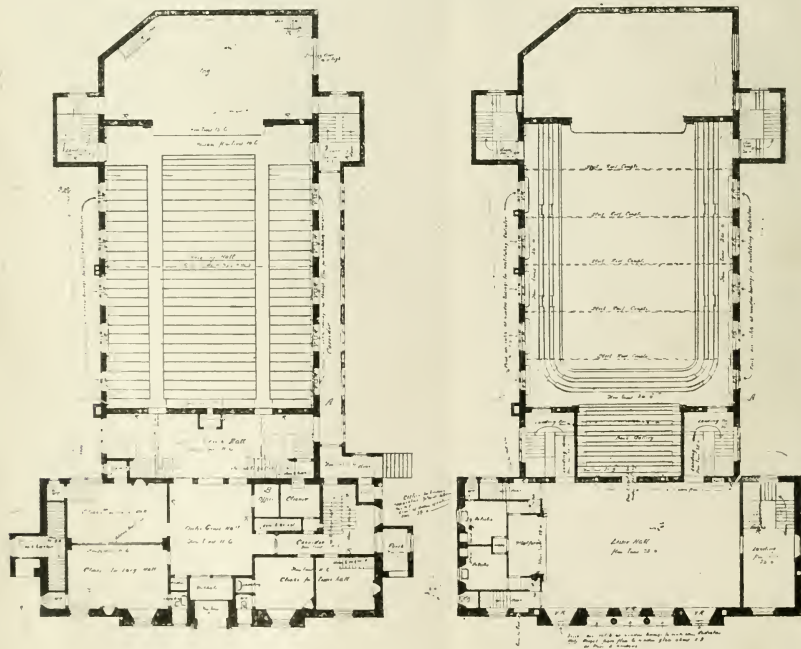
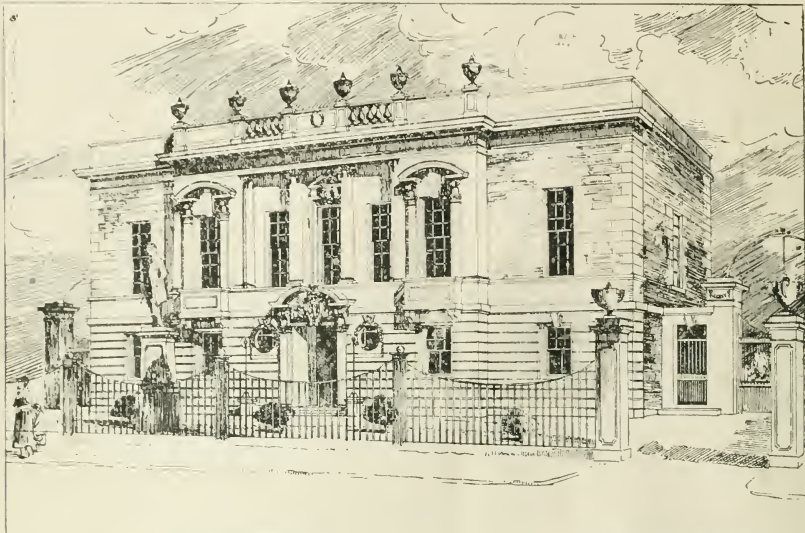
The King has graciously accepted a copy of "Henry VIII's Chapel Westminster," after a drawing by Mr. Leonard Paton, of Purbeck, Detman Drive, Hampstead Garden City, N.W. The following is an extract from a letter of thanks:—"The King thinks it a beautiful and a creditable work, and is very much pleased to have it published at the east end, with the altar and the stalls of the Knights of the Bath, and has admirably reproduced the sumptuous effects of the architectural details. We are sure all readers will thank him for the opportunity afforded us of reproducing the drawing."

AIRDRIE TOWN HALL, N.B.

SELECTED DESIGN.

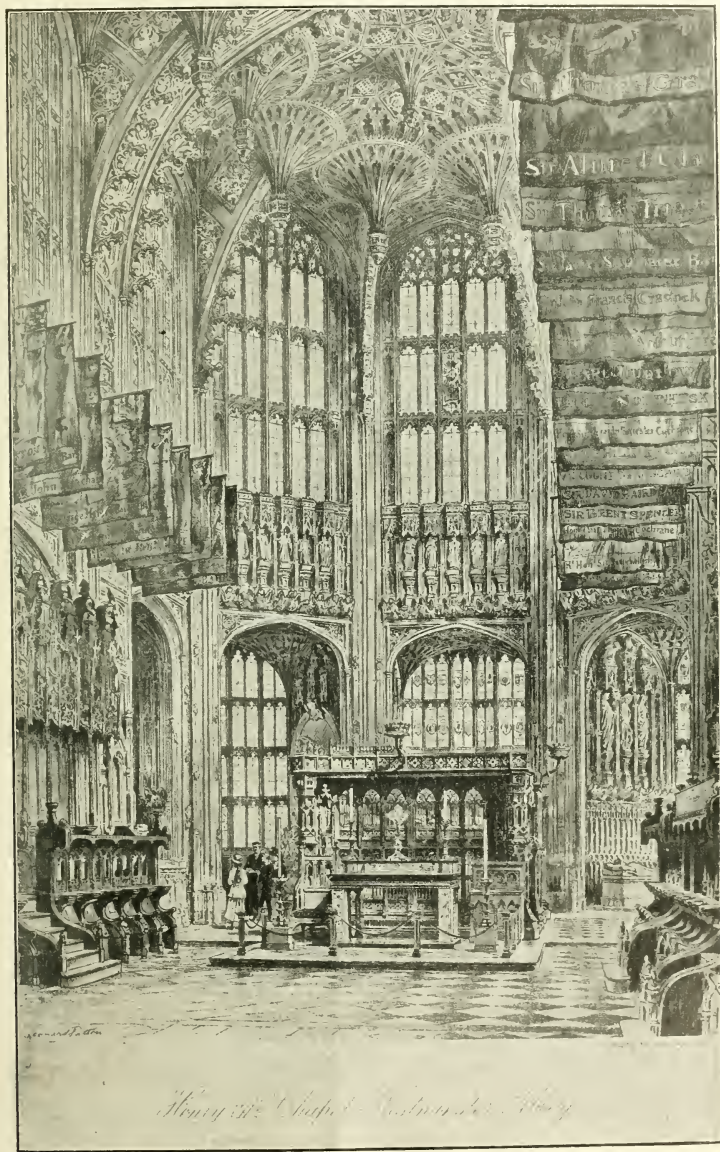
This building, in the Renaissance style, is being built of white stone, and the back walls, if brick, are coated with cement roughcast. Special attention has been given to the provision of fireproof floors in the corridors, and stairs, which, in case of fire, will be sufficient to accommodate, when standing, 1,000 to 1,700 persons, which is the seating capacity of the whole building. Ample exits have been provided to insure a speedy exodus from any part of the building. The concert hall, seated in the area for 753 persons, the gallery accommodates 373, and the platform, which has also side wings for theatrical scenery, will have movable staging to seat 150 persons, and hatches will be provided in the floors to lower seats into the area underneath the hall, when the theatre is required. A feature of this hall will be the absence of columns supporting the galleries, which will be carried on steel cantilevers. The entrance to concert hall is through a crush hall, 20ft. by 21ft., in the centre of the front building, which again opens into an inner corridor, 50ft. long and 15ft. wide, with doors entering directly into the area of the hall, and stairs at each side, which lead to galleries, and provide communication between larger and lesser halls when these are let en suite. The ladies' and gentlemen's cloakrooms for large hall are each 24ft. 6in. by 14ft. 9in., and are placed on the left side of the crush hall, and on the right side, while two artists' rooms, each measuring 17ft. 6in. by 12ft. 6in., are placed underneath the stage on each side of an assembly room measuring 23ft. 6in. by 17ft. 6in., entrances to which rooms are from the back. Each room is provided with a separate lavatory compartment. The lesser hall, which occupies the upper floor of the front building, is seated for 350, and is approached from a porch at west side into a crush hall, from which the stair ascends to the upper floor, with a landing 19ft. by 12ft. 6in., off which the hall is entered. The two cloakrooms, in connection with the crush hall, enter from the crush hall, and are each about 14ft. by 13ft., while two artists' rooms, 10ft. by 10ft., are provided next the platform, and are entered from inside stairs at the east end of the building, which stairs also provide emergency exits for this hall. In addition to the seat storage, the crush hall gives accommodation for a janitor's house of room, kitchen, and scullery, heating chamber, and a kitchen with relative offices, and host to serve dinners, etc., in either hall. The plans were accepted in competition, and are by Messrs. James Thomson and Sons, architects, Airdrie, who have also designed several of the other important public buildings in the town.

The town council of Paisley accepted on Friday the offer for £24,000 of Barrow Mansie and its contents, and estate of 95 acres as a public park. It was voted that the sum to be found for the fresh and only represented the agricultural value of the property.



Main Floor Plan

GALLERY & LOWER HALL FLOOR PLAN



HENRY VII'S CHAPEL, WESTMINSTER ABBEY.

(From the drawing accepted by the King. By Mr. LEONARD PATTEN.)

two sections, of which the upper (C) serves as a reservoir for the stone which is charged from an elevated platform in the direction indicated by the arrow, either by hand or by automatic tip-wagons, according to the scale of the works. The waste heat is then given off by the combustion going on in the lower chamber (B) is mostly retained by the stone in the upper chamber (C), and the gases thus utilized. The lower chamber (B) is lined with firebricks, the stone resting on the grate (D), fitted with a movable door, by means of which the calcined limestone is withdrawn. This kiln is best adapted to work a hard stone owing to the movement of the stones continually downwards. Figs. 2 and

FIG. 2.

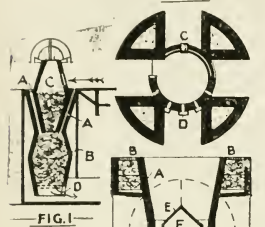


FIG. 3.

3 show respectively a plan and section of even a more up-to-date continuous kiln, which may be coal or gas (producer) fired. It built in four quadrants with a diameter of 40ft., and is 20ft. in height, the quadrants being filled in with broken brick, etc. The outer walls are 22in. thick, and the firebrick lining (A) forming the pan, 9in., the back lining (B) of old bricks, 9in. thick. The quadrants rest on four 8in. piers (C), 3ft. in height. The portholes (D) are 9in. wide and 18in. high, with an upward inclination, while (E) is the profile, and (F) the combustion chamber. Built at Longley, St. Ivanhoe-roads, Denmark Park, London.

Mr. Adolf Paul Oppé has been appointed Senior Keeper in the Victoria and Albert Museum.

Mr. W. B. M'Usky, engineer and gas manager, Perth, has been appointed gas manager for the corporation of Halifax.

At the Borough Council House on East Hill, Wandsworth, on Tuesday, Mr. A. G. Malt, a Local Government Board inspector, held an inquiry as to an application of the Wandsworth Borough Council for sanction to borrow £10,500 for the purchase of 30 acres of land in Kingston Vale Cemetery, as an addition to Putney Vale Cemetery. The price proposed to be paid is £350 per acre.

H.M. Office of Works has stated that it has no objection to the proposal to erect the memorial statue of Florence Nightingale near the Crimean memorial in Waterloo-place. It has been suggested that the memorial shall be placed the statue (now in the quadrangle of the War Office) of Lord Herbert of Lea, who was Secretary for War during the Crimean War, and who sent Miss Nightingale out.

Under the presidency of the Lord Mayor of Bristol a large gathering of citizens assembled at the Council House on Monday, when a presentation was made to Colonel Thomas Henry Yabucim, M.Inst.C.E., for the services he had rendered as city engineer and be a servant of the corporation for fifty years. The presentation took the form of an illuminated address and two silver candelabra and a silver fruit- and flower-bowl.

Plans have been adopted by the Northamptonshire County Council and the urban and rural district councils of Oundle for widening at an estimated cost of £4,000, Oundle North Bridge, which is on the main road from Wellingborough to Oundle, and crosses the River Nene near Oundle Station on the London and North-Western Railway. The existing bridge, which unites the urban and rural areas of Oundle, is 370yds. long, and consists of the main bridge spanning the Nene (four arches), another bridge at the mill at the west end (two arches), and six flood arches. It was built in 1571 and varies in width between the parapets from 15ft. 6in. to 20ft. 6in. It is to be widened on the south side to a uniform width of 36ft. The contractor is Mr. O. P. Drever, of Kettering, whose tender has been accepted at £7,953 10s. The engineer is Mr. C. S. Morris, of Northampton, the county surveyor.

WATER SUPPLY AND SANITARY MATTERS.

KINGSLASIE WATER SUPPLY.—A correspondent writes: The recent addition to the water supply of Kinglaspie village, Fifehire, has been much criticised locally. The Local Government Board was appealed to to look into the matter. The Board thereupon requested the medical officer for Fife to inquire into it and report. Dr. Currie, the medical officer of health: "I visited the village and interviewed parties on November 3, 8, and 22. Kinglaspie waterworks are so arranged as to divert and limit, by two lines of collecting-pipes, a series of water-bearing areas in hill pasture to the north of the village. Both are laid with partially open joints, excepting on the high line near a farmstead, where the joints are sealed. The purpose of the open joints is to take in subsoil water. . . . I am prepared to believe that rain after dry weather is apt to carry colouring substances into the water. This may take place in any supply which is not stored in a reservoir. It does not occur at Kinglaspie with every shower, and the point is whether it occurs so frequently that steps should be taken to deal with it. To solve this question, observations would be made over a sufficient period. A resident in the village is prepared to make daily tests in a suitable manner. . . . A sample of water taken in my presence by Inspector Macenzie has been submitted to chemical and bacteriological examination. The analysis report follows: "Dundee, November, 1911.—Sample taken . . . during wet weather. 100,000 parts of this water yields free ammonia, .0006; albuminous ammonia, .0085; carbonate of lime, etc., 18.540; chlorine, 1.1; iron, 0.001; nitrates, none; nitrites, none; hardness in Clark's degrees, 13deg.; lead or other poisonous metals, none. . . . The yields of free and albuminous ammonia are low, indicating a high degree of organic purity. The absence of nitrates indicates freedom from previous sewage contamination. Saline matter is moderately high, leaving the water a fair quality for washing purposes. The bacteriological examination does not give rise to suspicion of recent animal pollution. I consider this water in its present condition fit for drinking and general domestic purposes.—(Signed) G. D. Macdonald, F.I.C., county analyst for Fifehire." Dr. Currie proceeds: "The above report scarcely requires comment. The sample was drawn at a time of rain. Despite this circumstance, unfavourable to good results, it was pronounced of high quality. With the water thus obtained, and the water from the other two accounted pure, the charge against the cultural drains is lightened. These drains, as I am informed by the engineer, bridge across the open-jointed collecting-pipes, and I think it probable that water from the drains may enter the open-jointed pipes and may during rainfall take earthy matter with it. If this occurs to a notable extent, colour will appear in the supply, and will be revealed by the tests known to the public. If the contamination is slight and occasional, it does not call for remedial measures. If it is frequent, marked, and persistent, it should be dealt with. To determine the point with precision, systematic tests should be made. In the meantime, concluding these comments, it is proper to point out that Kinglaspie people during the long drought of last summer appear to have enjoyed at all times a constant and copious supply of water. It is to the credit of the water supply authorities yet a year old, that it should have held good where many ambitious undertakings proved faithless." This investigation has occurred opportunely, when Fife is faced with ambitious schemes for increasing the water supply. It applies—schemes that would entail great outlay. Kinglaspie is one of the districts that was invited to join in such a scheme. Had they decided thereon, they would have had to wait three or five or six years for the water supply, and would have had to pay therefor a capital cost of about £5 per head of population supplied. Their committee in three months brought up their summer supply for 800 inhabitants to what is sufficient for 2,600 at a capital cost for works (old and recent) of £1,300—10s. per head. Nor is that all. Their works are arranged for extension, so that as the population grows, the capital cost (from the beginning) of only £4,000 for a supply of 6,000 of a population is obtainable—13s. 4d. per head. The engineer for the "modest" Kinglaspie scheme (Mr. David Livingstone, of Fife), is Fife's chief sanitary officer, that almost every district in Fife has been elsewhere, requiring additional water supply, can be somewhat similarly and abundantly supplied with excellent, naturally-filtered water at comparatively small outlay.

Our Office Table.

Archdeacon Taylor, the rector of St. Saviour's parish, S.E., strongly supports the appeal of Mr. Henderson Livingstone, C.E., for opening out the site of Southwark Cathedral by the removal of the warehouses, market buildings, and other sordid surroundings which at present so closely hem in the edifice. He remarks: "The vision of a garden with trees and an embankment between the cathedral and the river, covering the site once occupied by the warehouses, markets, and of the priory, and by the town house of the Bishops of Winchester adjoining, is almost too good to be true. Once this spot, seen from bridge or river, was beautiful—a stately group of buildings, of which the church alone remains, rising above the green of its field and orchard. Is it possible to make it beautiful again? I would plead for a serious discussion of the possibility of the scheme on behalf of the dwellers in the crowded 'buildings' of Southwark."

A. The proposal of the Guildford Town Council to demolish a number of ancient and picturesque cottages in the town for the purposes of street widening is causing widespread disapproval, and many letters of protest and suggestion are being received by the corporation from individuals, antiquarian societies, and from the National Trust for Places of Historic Interest or Natural Beauty. The cottages are practically the oldest of the kind in the borough, and the town council is being appealed to to acquire modern business premises on the opposite side of the road to carry out its improvement. The local authority, however, points out, in reply, that it has no option but to make the improvement. The cottages abut on to the Farnham-road, which comprises a portion of the main road to Portsmouth, and some years ago the Surrey County Council made a large contribution to an improvement in the neighbourhood on condition that the road should be widened within a given period. The corporation is bound to carry out its part of the scheme, and unless the county council will release the corporation from its undertaking, the cottages are doomed. The acquisition of the modern premises is said to be financially impracticable. The National Trust describe the cottages as "picturesque bits of old Surrey and old England."

A joyous party of aged citizens and their wives, and the widows of departed citizens, attended at the Luckie Horseshoe Studios at Exeter on Christmas Day. For the forty-third successive occasion, Mr. Harry Hems invited sixty-nine persons (one for each year of his life) to partake of seasonable cheer. Mr. Harry Hems, for the first time, was absent, being in St. Louis, U.S.A., superintending the dedication of the elaborate reredos in Christ Church Cathedral. In the absence of the genial host, Mr. Greville C. Hems occupied the chair. A telegram was received from H.R.H. the Prince of Wales, in response to one from the chairman, "wishing the Devonshire and Cornish veterans a Merry Christmas and a Happy New Year. Among the guests were the Bishop of Exeter and the mayor and sheriff of the city. At the very close, when the ancient citizens were indulging in a country dance, a cable was received from Mr. Harry Hems, despatched two hours previously from St. Louis, U.S.A. It read: "Merry Christmas. God bless you all.—Harry Hems."

A banquet was given by Denn C. M. Davis, of Christ Church Cathedral, and the Cathedral Chapter, on Monday at St. Louis, Mo. Davis presides the *St. Louis Globe-Democrat* of December 20, in honour of Harry Hems, creator of the ornate and beautiful reredos and altar just completed at the cathedral, which is the gift of Mrs. B. B. Graham. Speeches were made classifying both reredos and altar as a work of the highest type of religious art, and ranking the cathedral with the grandest buildings of the world. An expression of

appreciation of Mrs. Graham's gift was conveyed to her by vote of this gathering. Mr. Hems is returning home to Exeter by way of Cuba. His last address in St. Louis was a lecture before the women of the art section of the Wednesday Club, the same afternoon, December 28, from the choir steps of the cathedral, explaining the teachings of the sculpture displayed. The recedros was dedicated on Christmas Day.

The National Radiator Co., Ltd., have issued inset pages for their 1911 catalogue, relating to new boilers and radiators which they are just placing on the market. The "Ideal" narrow radiator embodies some new features in radiator construction, three sections and four sections respectively being cast in one piece, thus greatly reducing the number of joints. Moreover, both the nipple and end-threads are screwed to the new English standard, and the feet are detachable, so that sections can be added at any time after the radiator is fixed without removing the end sections and with the minimum of labour and trouble. These radiators can also be supplied with detachable "carpet feet," the carpet being simply placed over the feet, instead of cut. The radiators can, of course, also be supplied without feet, or with regular wall brackets, or they can be fitted with the "Astro" hospital pair swinging armchair. The "Ideal" dining-room radiator, which is made with single and double oven, is listed in seven sizes, its special feature being that the top, back, and sides of the oven are formed by the intermediate sections themselves, thus greatly increasing the efficiency. The 3 "W" and 3 "U" series boilers, for water and steam respectively, are constructed on the same general lines as the "Ideal" No. 0 and 1 "U" series steam boilers, particulars of which were issued some time since. In the No. 3 series, however, each section is made in halves, for facility in handling. Each half is assembled independently, the two halves being placed close together so as to form the fire-box. The water boilers range in capacity from 3,000 to over 9,000 square feet of radiation, and the steam boilers from 1,560 to 4,710 square feet, and one or two top firing doors can be supplied, in addition to the ordinary door at the front, if required.

Perhaps on the present occasion it may be unnecessary to ask indulgence on our own behalf and on behalf of those firms who have entered their enterprise by co-operating with us, if we call special attention to the colour-printing which we have again introduced into our advertisement pages. Those who have any experience of the cost of this will readily realise the large expense involved in printing such a number of copies as our present issue. All will, however, agree that credit is due to our printers for the results they have obtained, which enable firms such as Messrs. Carter and Co., Ltd., of Poole, to show a facsimile of the application of their "Ceramic Marble" to freestone construction. Messrs. Waygood's name is prominently connected with lifts of every description, while Messrs. Robt. Ingham Clark and Co., Ltd., in commissioning the celebrated artist, Mr. John Hassall, R.I., to design the picture reproduced on our back page, have shown once again the enterprise and originality which have always distinguished this well-known firm. The introduction of the hero of Mr. Barrie's popular play to the advertisement pages of a technical journal marks, we venture to think, a new departure in up-to-date advertising.

The death is announced of Mr. William Pinchin, contractor, of Barry.

The city council of Nottingham, at their meeting on Monday, agreed to raise the salary of Mr. Davies, who has been water engineer for the past 18 years, by £200 a year.

The ancient "Chapel of Our Lady of the Brigg," at Derby, one of the very few English brick chapels in existence, which has been used as a museum in connection with St. Alkmund's Church for nearly 40 years, is now closed owing to lack of funds to pay its modest rental. The last service was held there on Sunday.

MEETINGS FOR THE ENSUING WEEK.

MONDAY.—Royal Institute of British Architects, Special Business Meeting of Members Only, 8 p.m.

Surveyors' Institution. "The Tendency of Recent Modifications of the Lands Clauses Act," by Frank W. Hunt, F.S.I., 8 p.m.
Liverpool Architectural Society. "Museum and Galleries," by Edwin T. Hall, F.R.I.B.A., 8 p.m.

TUESDAY.—Institution of Civil Engineers. "Reinforced-Concrete Valves and Warehouses at Lower Foulton, Slough," by John Howe Ellis, M.Inst.C.E. "The Direct Experimental Determination of the Stresses in the Reinforced-Concrete of Reinforced-Concrete Columns," by William Charles Popplewell, M.Sc., Assoc. M.Inst.C.E. "Composite Columns of Concrete and Steel," by William Hubert Burr, M.I.C.E., 8 p.m.

WEDNESDAY.—Northern Architectural Association, by Ed. Newstead, by Old Newcastle Artists," by T. M. Clague, 7.30 p.m.
Manchester Society of Architects. A Criticism of the Students' Drawings, by Prof. S. H. Capper, M.A., A.R.I.B.A., Mr. F. S. Worthington, M.A., F.R.I.B.A., and Mr. Roger Oldham, 8 p.m.

THURSDAY.—Society of Architects. "Illumination as a Study for Architects," by John Darby, F.S.I., 2d, Bedford-square, W., 8 p.m.
Concrete Institution. Presentation of Committee's Report on "The Standardisation of Drawings for Reinforced Concrete Work," 8 p.m.
Institution of Electrical Engineers, 8 p.m.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, and should state the claimants upon the space allotted to correspondents.

RECEIVED.—R. Lid.—G. B. and Co.—G. M. H. and Co.—S. H. C.—A. C. C.—L. Lid.—W. H. B. and Co.—S. H. C.—P. C. Lid.—Resident.—B. H. C.—J. M. S.—P. M. S.—P. S. J. W.—E. M. O.

TELETYPE.—No.

QUAL.—Architects are not exempted by law from serving on juries. Medical men and solicitors are.

R. S. A.—Earl de Grey held the presidency for 24 years, from 1835 to 1859. Mr. A. J. B. Beraford Hope for two years, 1860-7.

T. J.—We do not advise the make mentioned. There is no better instrument than Stanley's sin. model transit theodolite, the price of which is £25.

"BUILDING NEWS" DESIGNING CLUB.

FOURTH LIST OF SUBJECTS.

D.—A Detached Water-tower. The tank to measure 30ft. diameter, and left, high at the sides, and the height to its base from the ground line to be 30ft. The site is on the slope of a hill, the tower standing on a flat plot levelled for the purpose on a rock bed foundation. The main point to observe is so far as the appearance is concerned is that the tower will form a feature on the profile of the hill from the distance. A means of access to the tank (which must have an arched entrance and domed top in addition to the height at the sides) to be provided. This probably would be best arranged by means of a circular spiral iron staircase in the middle of the tank, which will be built up in sections, resting on iron bearers below its bed to carry it. The construction may be in brick or in ferro-concrete, faced with brick or rendered in cement. The tower can enclose the tank or not if the competitor wishes to make a feature of the tank by showing it outside; but, anyhow, it must be roofed in, and on the top an outlook gallery of some kind to be arranged as the competitor sees fit. The shape and materials of the roof are left to the competitors; also the architectural treatment. The wind-pressure of the exposed situation is to be allowed for. This applies more to schemes of open design in the construction of the supports. Scale 1/4" to 1 inch. Four plans, elevations, and one elevation, and a view. Drawings, with compass on their backs, should reach the Editor, New Office, 10, Abchurch Lane, Saturday, February 10, 1912.

Drawings Received.—"Soc't," "Country Yoke!," "Venas," "Bournemouth Queen," "Whiskers," and "N. Desperandum."

Mr. Albert Edward King, architect and surveyor, of Victoria street, Westminster, and formerly in practice at Baxgate, Longborough, died on the 26th ult. from pneumonia poisoning complicated with pneumonia at the early age of 41 years. He had an extensive practice in the designing of electric theatres and factories.

The New Year Honours include knighthoods for Mr. Frederick Wedmore, the art critic; Mr. John Tudor Walters, M.P. for Brighton and Division, Sheffield, and a well-known architect; and Mr. Bertram Coghlin Alan Windle, principal and professor of archaeology in University College, Cork. Mr. Bertram Macneall, A.R.A., sculptor and designer of the Goussier postage stamps, receives the M.V.O., 4th class.

LATEST PRICES.

IRON.

| | | | | | | | | | | | |
|--|----|----|---|----|----|----|---|----|----|----|---|
| Steel Joists, Belgian and German (ex steamer, London) Per ton | 25 | 12 | 6 | to | 25 | 12 | 6 | to | 25 | 12 | 6 |
| Steel Joists, English | 25 | 12 | 6 | to | 25 | 12 | 6 | to | 25 | 12 | 6 |
| Wrought-Iron Girder Plates | 7 | 0 | 0 | to | 7 | 0 | 0 | to | 7 | 0 | 0 |
| Steel Girder Plates | 7 | 0 | 0 | to | 7 | 0 | 0 | to | 7 | 0 | 0 |
| Bar Iron, good | 6 | 0 | 0 | to | 6 | 0 | 0 | to | 6 | 0 | 0 |
| Do, Lowmore, Flat, Round, or Square | 30 | 0 | 0 | to | 30 | 0 | 0 | to | 30 | 0 | 0 |
| Do, Welsh | 30 | 0 | 0 | to | 30 | 0 | 0 | to | 30 | 0 | 0 |
| Boiler Plates, Iron— | 9 | 0 | 0 | to | 9 | 0 | 0 | to | 9 | 0 | 0 |
| South Staffs | 9 | 0 | 0 | to | 9 | 0 | 0 | to | 9 | 0 | 0 |
| Best Swedish | 9 | 0 | 0 | to | 9 | 0 | 0 | to | 9 | 0 | 0 |
| Angles 10s, Tees 20s, per ton extra. | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| Builders' Hoop Iron, for bonding, 24, 25 lbs. to 26 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| Builders' Hoop Iron, galvalised, 24 to 25 lbs. to 26 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| Galvalised Corrugated Sheet Iron— | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 24, 25 lbs. to 26 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 26, 27 lbs. to 28 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 28, 29 lbs. to 30 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 30, 31 lbs. to 32 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 32, 33 lbs. to 34 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 34, 35 lbs. to 36 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 36, 37 lbs. to 38 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 38, 39 lbs. to 40 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 40, 41 lbs. to 42 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 42, 43 lbs. to 44 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 44, 45 lbs. to 46 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 46, 47 lbs. to 48 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 48, 49 lbs. to 50 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 50, 51 lbs. to 52 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 52, 53 lbs. to 54 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 54, 55 lbs. to 56 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 56, 57 lbs. to 58 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 58, 59 lbs. to 60 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 60, 61 lbs. to 62 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 62, 63 lbs. to 64 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 64, 65 lbs. to 66 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 66, 67 lbs. to 68 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 68, 69 lbs. to 70 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 70, 71 lbs. to 72 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 72, 73 lbs. to 74 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 74, 75 lbs. to 76 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 76, 77 lbs. to 78 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 78, 79 lbs. to 80 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 80, 81 lbs. to 82 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 82, 83 lbs. to 84 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 84, 85 lbs. to 86 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 86, 87 lbs. to 88 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 88, 89 lbs. to 90 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 90, 91 lbs. to 92 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 92, 93 lbs. to 94 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 94, 95 lbs. to 96 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 96, 97 lbs. to 98 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 98, 99 lbs. to 100 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 100, 101 lbs. to 102 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 102, 103 lbs. to 104 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 104, 105 lbs. to 106 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 106, 107 lbs. to 108 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 108, 109 lbs. to 110 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 110, 111 lbs. to 112 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 112, 113 lbs. to 114 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 114, 115 lbs. to 116 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 116, 117 lbs. to 118 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 118, 119 lbs. to 120 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 120, 121 lbs. to 122 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 122, 123 lbs. to 124 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 124, 125 lbs. to 126 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 126, 127 lbs. to 128 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 128, 129 lbs. to 130 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 130, 131 lbs. to 132 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 132, 133 lbs. to 134 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 134, 135 lbs. to 136 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 136, 137 lbs. to 138 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 138, 139 lbs. to 140 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 140, 141 lbs. to 142 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 142, 143 lbs. to 144 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 144, 145 lbs. to 146 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 146, 147 lbs. to 148 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 148, 149 lbs. to 150 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 150, 151 lbs. to 152 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 152, 153 lbs. to 154 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 154, 155 lbs. to 156 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 156, 157 lbs. to 158 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 158, 159 lbs. to 160 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 160, 161 lbs. to 162 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 162, 163 lbs. to 164 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 164, 165 lbs. to 166 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 166, 167 lbs. to 168 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 168, 169 lbs. to 170 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 170, 171 lbs. to 172 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 172, 173 lbs. to 174 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 174, 175 lbs. to 176 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 176, 177 lbs. to 178 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 178, 179 lbs. to 180 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 180, 181 lbs. to 182 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 182, 183 lbs. to 184 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 184, 185 lbs. to 186 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 186, 187 lbs. to 188 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 188, 189 lbs. to 190 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 190, 191 lbs. to 192 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 192, 193 lbs. to 194 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 194, 195 lbs. to 196 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 196, 197 lbs. to 198 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 198, 199 lbs. to 200 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 200, 201 lbs. to 202 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 202, 203 lbs. to 204 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 204, 205 lbs. to 206 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 206, 207 lbs. to 208 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 208, 209 lbs. to 210 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 210, 211 lbs. to 212 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 212, 213 lbs. to 214 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 214, 215 lbs. to 216 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 216, 217 lbs. to 218 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 218, 219 lbs. to 220 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 220, 221 lbs. to 222 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 222, 223 lbs. to 224 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 224, 225 lbs. to 226 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 226, 227 lbs. to 228 | 10 | 0 | 0 | to | 10 | 0 | 0 | to | 10 | 0 | 0 |
| 228, 229 lbs. to 230 | 10 | | | | | | | | | | |

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinham House,

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Strand, W. C.

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OUR ILLUSTRATIONS.

Cartoon of "Winter." Royal Academy Silver Medal Prize Design. By Miss M. I. Williams.
 Easter Sepulchre, All Saints, Hawton, Notts. R.I.B.A. Pugin Studentship Drawings.
 St. Augustine's Church, Highgate, West Front. Mr. J. Harold Gibbons, Architect.
 House at Gerrard's Cross. Messrs. Castle and Warren, Architects.
 Home at Byfleet. Messrs. Castle and Warren, Architects.

THE LONG COMPTON STONE CIRCLE.

It was in a sharp frost that we drove over, five or six of us, many years ago, after a heavy snowstorm, to see the stone which people say cannot be counted twice alike by different people; and it is only fair to say that each party of us reckoned them up differently. But we do not think that the result is not easily explained by the facts of the case, or that there is anything at all marvellous about it. The marvellous thing is rather that so many of us should not be burning to tell the story. Not that we can, believingly, tell it as it should be told. Much of it has dropped out of our memories and hearts—for such was never really in them. Why the knights ever came to that part of Oxfordshire all I doubt if any of us who saw them in their petrified condition could more fully explain—at least, to the satisfaction of a judge and jury.

Nothing is too bad to happen; and yet the Power that is over us seems good. If it does not drive evil away from us, it is always taking us away from evil; and death is its safety-valve, which insures that there will not be more laid upon us than we are able to bear. When the misery of existence seems too great to contemplate—when we doubt whether it can have been love that devised "the cruel mystery of trial and error" by which living things shape themselves into what they are, we may reflect that, quite conceivably, to know the very truth on one point would alter all our views. We always assume that death is loss; but if it is, as to St. Paul, death were gain, and we could see sunlight beyond it, what then? Perhaps after that few of us would have patience to live on "in this dull world, where yet its sweet to be." "Make answer, Maud, my bliss, Maud, made my Maud by that long lover's kiss; Life of my life, wilt thou not answer this?" The dusky strand of Death unwoven here. With dear Love's tie, makes Love himself more dear." The loss may come long years after; the gain may be "eternal, separate from fears." Because we have fears at first, are our fears to discolour everything for ever?

The sociable or small van of people, started from the corner of Maugersbury-lane in the lower part of Stew-hill, and therefore, in the part of the hill farthest from the little market-town of St. W. That beautiful hill, a mile and a quarter long, was in its last beautiful season. The firs and larches which cover its left-hand side had lost most of their summer foliage, and the beeches which clothe it on the right hand, except in a few of the minutest sheets, had lost

all theirs. Only once in a while a spray of spurge-laurel, always most brightly coloured in the very depth of winter, and nearest to flowering too. It is a finer plant than the mazeron, though not a prettier one; and why it was never used for Christmas decorations it is hard to understand. Perhaps it was because it was poisonous, and the memories that hung round it were painful ones. It is a woodland plant, but a rather rare one, though the mazeron, which grows, or did grow, wild in Durham woods, must be, or must have been, rarer still, yet three or four green-flowered, bright-leaved laurels are all we can find on Stew-hill, Gloucestershire, so near Christmas-time as this. On we go through Maugersbury, a hamlet of a few hundred inhabitants, with many old houses, but no old church, and little moving population. Teomb, hard by, has a church with an old saddleback, slated, stone-coped tower, and a picturesque one. Its church has a noticeable east end, as east ends used to be about the year of Our Lord, 1200. May the pattern and the materials and the masonry last for the next 1,200 years, and not have died out then!

When we have passed Maugersbury-hill we shall enter by a wide field-gate the high road to Oldington and Adlestrop, and come in sight of the County Elementary School. But we have missed St. W. altogether, and seen Maugersbury instead. Stew, with its Perpendicular tower in the rather unusual position on the very top of the hill, with Moreton four miles off, which a well-known novel endows with mists, and fogs, and vapours, and November and December put into one, simply because being built on the marches of the shire, it caught a name it never tried to get, and became, none of us remember why or when, Moreton-in-the-March for Moreton-on-the-March. If it too late to rename it now; we might as well try to rename Burns's people, go to bed, or to cut them loose from little houses or hills to which more than 100 years are mostly for very trivial reasons, he was pleased to stun them. The birds, it is likely, for reasons of their own, are very fond of Daphnolberries, and are nearly half-poisoned by them that you can almost see quite lift them off the Daphnol with your hands, which seems to be why there are no more young plants about. They are almost fondles of our only other native species, seven berries of which, Withering-tails us, will kill a wolf. We can only hope that wolves find them as attractive as thrushes do, and more plentiful than we do.

After leaving the Gloucestershire marshes, when we cross the West Midland line, we have to make our way across the outlying parts of Oxfordshire, as they must have been before that shire was a shire at all, and before "Oxbridge" was first a university town. Mr. Ruskin once took a band of undergraduates on a road-repairing expedition, and perhaps would have led them on any other that promised a blessing to either their bodies or their souls. Whether he would have led others we may not venture to say, remembering that he once called on a popular Nonconformist preacher with the depressing announcement that he had come as a messenger from Satan, to see him! But Mr. Ruskin, though he was not "bragged up" as a Nonconformist, was undoubtedly reared as an Evangelical, and said some harsh things about that variety of Ritualists when he came of age. Quakers he did not seem to hate, perhaps because their ritual was so small, and what there was of it, seemed so harmless. The Nonconformists whom he favoured were few, and not remarkable for worldly learning—rather for the lack of it, perhaps; so that if we judge him by his speech to Mr. Spurgeon, they did not lose much.

It is nearly twenty years since Mr. Spurgeon died; myths he built on are passing away (though louder and louder the Evangelicals roar that they never will pass). Facts last, fancies fade; and for his own glory Spurgeon hardly faded away to us. His great name was in the year of the 1902 Exhibition, and after that less and less each year that brought gangs of ignorant strangers to a London which they thought too big and too pretentious to be after all, as ignorant as they themselves were. There is much to unlearn yet and much to learn; and the next thousand years or the next ten thousand has a busy time before it. The new men we have more to destroy than to save. Perhaps more Spurgeons are coming just yet; more conventional orators who will show every folly as it flies though they would hardly fire a gun, not so much the fellows of the great as of the small, which they thought the Lord winked at, or ought to wink at, seeing how limited their means of amusement were, and how hard it was to get them to get the most of their lives and ten of life would have a few little sins even in a whole to pass away a few times. It did not seem to strike him that rich and poor persons passed on their way from the shore, warm and cold, Mr. Spurgeon's disciples, and that a half-past seven in knocking at a half-past eight, and going to the City at half-past

nine must be more than any constitution could permanently put up with, unless it had some better break to it than taking a chair now and then at an Exeter Hall missionary meeting (gift from the chairman, £30), when all the speakers were in awe of him, and were trying to paint all his shabby tricks white, which generally made them look blacker and blacker, and perhaps called the first articles of the wicked "church" newspapers, which otherwise might have left them alone, as too dirty to touch.

We had a pleasant ride, but, as it happens in the world, not quite with the friends we should have selected. Long Compton was visible a couple of miles away, and then began the string of questions which, on every pious pilgrimage, archaeologists have to expect. Who deposited the 83 or 84 or 85 lumps of limestone here, and when and why? Wherefore would the tallest man of the stone-masons have been made King of England if he could have seen Long Compton then? Was it not built? And why did not his friends build it for him there and then? Did they think the houses would not let? Or did they fear the rates would be too heavy? Or did they split upon some question of a House of Lords, or of a National Establishment? These people might have agreed on questions of education, for perhaps none of them much wanted any. Perhaps all they could do was to fight anybody, anywhere—which, after all, is something, as we have often found it; but how did they fight better for setting up these stones? But wherever the people were, and wherever they came from, they must have had priests, for priests, speaking with authority, are the first officials that any community half-composed of their adherents is sure to call for. On questions of beauty it will call for some ornament, and on questions of fact, for more theology, and the world is so full of ornamentists and other half-crazed persons that it seldom fails of a supply when it is prepared to pay for it. Perhaps this is not every architect's experience of later years; but unless their forefathers found it so, why were there ever so many churches? Faith and beauty are both rather out of fashion now; but unless faith has failed, is church-building nearly given up? Nonconformist building, too, seems on its last legs; but more for badness than for smallness of bulk; and the gentlemen of that persuasion who were in the churches some months ago seem to have been singularly unlucky in the date selected.

As we do not know who raised the Long Compton Stone Circle, we naturally can't say what he believed, or whether, unlike Mr. Thomas Hardy, he believed in nothing supernatural at all. Perhaps, as a body, he was made up of sceptics who professed the state religion, and patriotic people who protested against it, much as happens in England now; and, if so, we wonder whether his early public church architecture even pleased the people who built it any better than ours does now? Perhaps that is why we cannot all count the Roll-right stones, alike, more especially when they are more than half covered with snow.

REINFORCED CONCRETE BUILDING.

By Wm. G. SWINWRIGHT, Lic.R.I.B.A., M.C.I., and Chartered Building Surveyor (by Exam).

No. 20, HANOVER SQUARE.

(Messrs. HARRIS and MOODIE, Architects.) A very excellent piece of structural reinforced concrete is to be found in the addi-

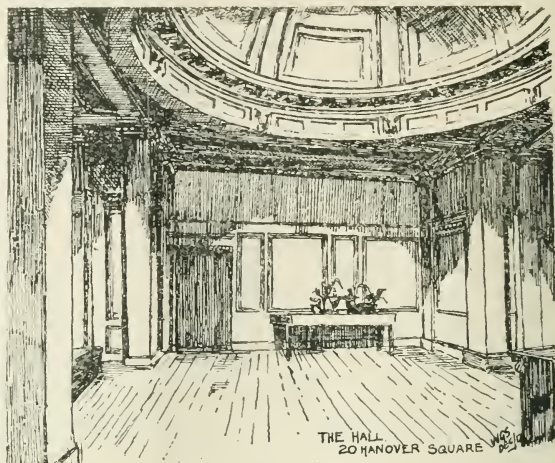


FIG. 1.

tions to this building, comprising Hall with Sale-Room under, and strong-room, erected for Messrs. Knight, Frank, and Rutley, selected as the subject of this article by reason of the inclusion of some unusual items of construction in the scheme, in order to meet the owners' wishes in the provision of the special accommodation which they required.

The scheme comprises the construction

tion to the main building, and indicate the problem which had to be faced in constructing the Hall, with the external walls inside those of the Sale-Room below, and approached from the main staircase by means of a long corridor; additional difficulty accruing from the necessity of affording the Sale-Room as much natural lighting as the circumstances would permit.

It will be seen that the ceiling in both



FIG. 2.

of a Hall shown in Fig. 1, on the first floor, and a sale-room shown in Fig. 2 on the ground-floor with basement under the latter apartment, the whole structure forming an addition to the existing building.

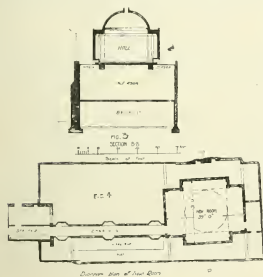
The Hall, which it was desired should have an extensive and unobstructed floor space, was formed with about 1,200 ft. clear superficial area (40 ft. by 30 ft.), whilst the sale-room on the ground-floor beneath was similarly constructed with about 1,750 superficial feet clear between the walls. The diagram illustrations, Figs. 3 and 4, show the positions of the rooms in rela-

wings of the Sale-Room has been glazed over the whole space outside the main beams supporting the Hall, the main walls of which oversail, and from alcoves which provide additional space and afford opportunity for enhancing the architectural effect of this apartment. These overhanging walls are supported on upstand beams, taking bearing on the main girders, and rising about 2 ft. above the level of the glazed roof.

Fig. 5 illustrates the general plan adopted in arranging the beams of the Hall-floor, which are lettered for reference to the details.

The principal beams shown in Fig. 6 traverse the whole width of the Sale-Room, having an effective span of 36ft. between the centres of the supporting columns B. It will be seen from the enlarged section (Fig. 7) that these beams are 36in. deep and 18in. wide, with six large tension-rods, the upper set of which are turned up outside the central loft of the span, whilst the close network of locking stirrups and hangers is considerably augmented between the supports, and the points where the transverse beams 1 and 4 intersect. The loads from these produce a powerful shear force; indeed, considerably more than half of the total load on the main beams is concentrated at the point of intersection, the position of which, however, renders them practically equivalent to distributed loads so far as bending stresses are concerned.

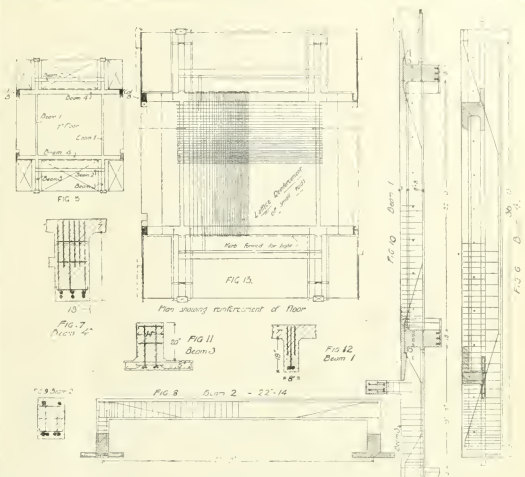
Beams No. 2 shown in Fig. 8 are designed in the smallest possible depth, in order to avoid interference with the lighting-space—the top of the beams being regulated by the top of the bulkhead in the alcoves of the Hall, which had to be placed at a proper level to form seating accommodation in these recesses. The total depth is about 1ft. 11in., and the beam (Fig. 9) is heavily reinforced with four tension and two compression-rods. The shear resistance (owing to the distribution of the load being of a more graduated character than that employed in beam No. 4, is more widely spaced. These beams are supported by



short upstand columns resting on beams No. 3.

By reference to Fig. 2 it will be seen that both for structural and decorative reasons considerable width was required in the lower flange of the beam No. 3, which is formed of the section shown in Fig. 11. Four central tension-rods are provided under the 14in. core, whilst the 5in. flange, projecting a further 14in. on either side, is formed in 5in. concrete reinforced at the corners and linked throughout the entire width with small transverse rods formed in one section and lapping joint above the tensile reinforcement-rods. Beams No. 1, shown in Figs. 10 and 12, form the supports to the Hall-floor on the sides perpendicular to beams 4. This floor being supported on four sides, is constructed in 7in. of concrete, and carried across the clear span of 20ft. in either direction without any support whatever; a close lattice of small transverse and diagonal rods only being employed, the spacing of which is diminished towards the centre of the span.

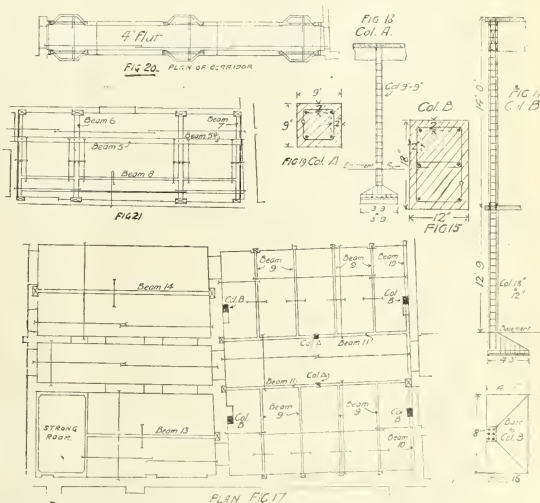
The loading is calculated upon the usual superimposed load of 1½ cwt. for public halls, and the construction is a clever and interesting piece of reinforced concrete work, whilst the general arrangement of the beams which achieves the purpose in hand in a most skilful and effective manner, merits some careful study.



Practically the whole of the weight is brought back to the two main beams, thereby at once greatly simplifying the design, and concentrating the loading upon four points of support supplied by column "B" carried down the walls of the Sale-

Room, constructed on the cantilever principle with heavy lattice reinforcement in the lower planes.

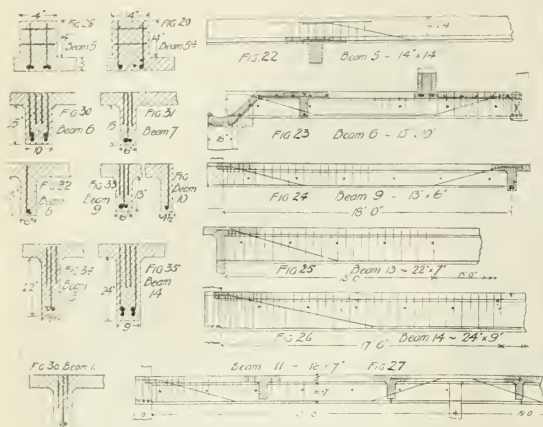
The general arrangement of the Sale-Room floor is shown in plan (Fig. 17). Central columns (a) 9in. square, shown in



Room beneath, and entirely obviating obstruction in the floor of this room.

Columns "B," shown in Figs. 14 and 15, are 12in. by 18in. girth throughout, with six reinforcing-rods placed 2in. within the outer edge, and securely bound with circumferential and transverse links of small rods at 6in. intervals. The bases of these columns (Fig. 16) are 8ft. long by 4ft.

detail in Figs. 18 and 19, are here indicated, the main beams being of the type shown in Fig. 27, which, being continuous beams subject to a changing stress, are provided with tensile reinforcement above the central columns support. The span is 19ft. between the supports, and the beam shown in section (Fig. 28) is 16in. deep and 7in. in width.



The remainder of the beams in the Saleroom, that are of the type shown in elevation (Fig. 24) and cross-section (Fig. 28).

Beams 13 and 14, the position of which

lattice shear reinforcement is adopted in beam No. 5 at the point of intersection with beam No. 6, the detail of which latter shows the rods bent down and split at the free end. The method employed to con-

section, by reference to which it will be seen that a double line of lattice-rod slabs at 6in. intervals placed about 12in. within either face of the 6in. concrete walls constitutes the general type of construction, augmented by criss-cross bonding rods lapped at intervals to the main rods (see Figs. 41 and 44). The set of rods in one wall is carried to the end at the angles, and split, whilst the intersecting rods are turned round the angles and bound as shown in detail (Figs. 41 and 44).

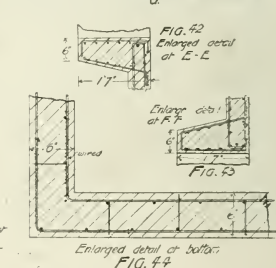
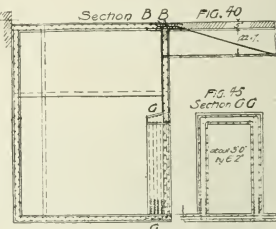
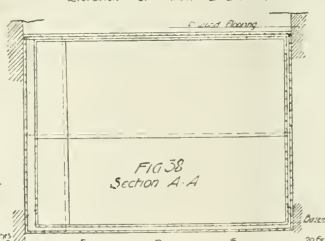
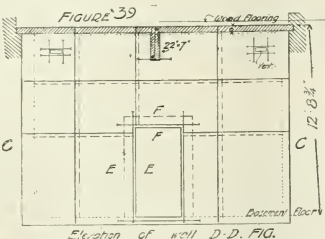
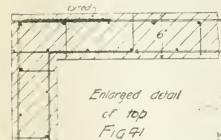
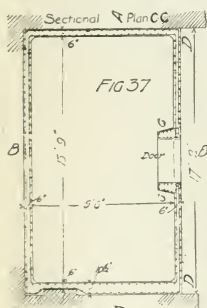
A door opening 3ft. by 6ft. 2in. is constructed of stouter rods intersecting at the angles, and going 12in. into the wall on either side of the opening (see Fig. 39), the head and reveals being formed by small, closely-placed rods secured to the floor reinforcement. Figs. 42 and 43 show in detail the linking arrangements.

The vent-openings were formed with a simple cross of rods shown in elevation (Fig. 39).

This concrete employed in the general work is composed of 5 to 1 sand, shingle, and cement concrete, 4 to 1 being substituted for the strong-room.

Combining several interesting items of construction, a study of this work reveals one of those structures where many intricate points of detail have received that close attention and careful consideration which has done more to compass many of the fine works in reinforced concrete than is perhaps generally believed.

Mr. E. P. Wells was the engineer, and



is shown on the plan, support the single-story private rooms adjacent to the Saleroom. The leading is therefore comparatively small in relation to the strain. Beam 14 has a clear span of 38ft., and is constructed in 22in. by 9in., with four stout tension rods to the detail given in Figs. 26 and 35, whilst beam 13 is also an interesting example of light beam constructed across a long span, which in this case is 26ft. The depth is 22in., and the width of 7in. Two tension-rod only are used as shown in Figs. 22 and 23, with enlarged sections Figs. 28, 29, and 30. A

struct the flat and gutter are also shown in Fig. 23. The concrete flat is 6in. over all in thickness, the gutter being formed by dishing over the wall. The reinforcement is placed at 1ft. intervals 2in. above the lower edge, and bound together with cross-rods lapping well over at the ends.

The strong-room situated in the basement in the position shown in Fig. 17 is also interesting as another example of the application of reinforced concrete.

The floor area of the chamber is 15ft. 9in. by 9ft. 6in., and the height 12ft. Fig. 37 shows the general plan, and Fig. 38 a

the reinforced work was carried out to his design by Stuart's Granolithic Co., Ltd.

Epping Urban District Council have resolved to ask the Local Government Board to permit by-laws to be altered so as to admit of a cheaper class of house being erected in the district in order to facilitate its growth as a London suburb.

The twenty-ninth annual dinner of the Clerks of Works Association will be held at the King's Hall, Holborn Restaurant, on Saturday, February 10, at 6 p.m. The chair will be occupied by Mr. Gerald C. Hensley, F.R.I.B.A., president of the Architectural Association.

REINFORCED CONCRETE.

Three papers were read at the ordinary meeting of the Institution of Civil Engineers, of which we give abstracts.

REINFORCED-CONCRETE WHARVES AND WAREHOUSES AT LOWER POOTUNG, SHANGHAI.

By S. H. Ellis, M.Inst.C.E.

The paper describes works recently constructed, under the author's supervision, beside the Whang Poo River, near Shanghai, in North China. These comprise a reinforced-concrete piled wharf, 1,160ft. long by 174ft. wide, with a minimum depth of 21ft. of water at its face; a reinforced-concrete quay-wall, 465ft. long and 21ft. high; and two reinforced-concrete four-story warehouses, each 300ft. by 100ft. in floor-area; as well as offices and staff-quarters, sheds for temporary storage of goods, and a power and light station. The foundations of the wharf and warehouse were founded on a deposit of river-deposited silt to an unexplored depth. The wharves and lighter buildings are founded on groups of reinforced-concrete piles. The warehouses rest on a raft of reinforced-concrete (girders, beams, and floor-slab), connecting the columns with a stiff grill, four to six ft. deep. A brief account is given of the methods employed in driving the wharf-piles, of which over four thousand were used, and in the formation of the superstructure. The chief feature of the latter is that all members but the pile-caps, beams, and deck, were moulded in place and erected in place when matured. The quay-wall is built along the river-bank, and consists of a thin vertical wall and horizontal deck connected by buttresses, the whole founded on piles. A slight forward movement of the structure is described, and the means adopted to ensure its stability.

The warehouses have reinforced-concrete floors supported by columns, the chief feature of which consists in the vertical members being bound with a continuous rod wound spirally and enclosing an area of heavily-stressed concrete. The interior first-floor columns are designed to carry a safe working-load of 376 tons each. The nature and method of the reinforcement of the concrete are briefly described, and the design results are given of three series of compression tests which were made (on the site) with Sin. cubes of 1:2:4 mixture. These gave average results of 2,540 and 2,811lb. per square inch at 3 months, and 4,137lb. per square inch at one year. The various methods of reinforcement employed are outlined, and the basis of calculation is stated. The points chiefly dwelt on are, first, the reinforcement of the lower columns in the warehouse; secondly, the general method of ensuring that the steel skeletons were firmly bound together, with no loose pieces; and thirdly, the particular plan of reinforcement in the wharf-girders, by employing a built-up reinforcement of angle and flat bars riveted together. A description is given of tests to destruction which were carried out on a full-sized experimental wharf-beam, a warehouse-beam of corresponding character, and five experimental columns of reduced size. Also of loading-tests applied to warehouse first-floor columns. The question of equipment is dealt with very briefly, and the unit costs of the main items of the work are given.

THE DIRECT EXPERIMENTAL DETERMINATION OF THE STRESSES IN THE STEEL AND IN THE CONCRETE OF REINFORCED-CONCRETE COLUMNS.

By W. C. Popplewell, Assoc. M.Inst.C.E.

In carrying out the experiments described in this paper, the author sought for a satisfactory method of measuring the shortening of the steel bars and the simultaneous shortening of the adjacent concrete under the loads applied to reinforced columns. From these measurements, if they were reliable, he thought it would be possible to calculate the stresses in the steel and concrete when the elastic moduli for the two materials were known. It was also thought that measurements made in this way would be the means of revealing any movement of

the steel relatively to the concrete. The main experiments were carried out on five round steel bars $\frac{1}{2}$ in. diameter. Loads were applied in a testing machine, and corresponding shortenings of the steel and concrete were measured by means of Mariens extensometers. For the steel, these were applied to the ends of pairs of pins projecting from the reinforcing bars through holes in the concrete, and for the concrete they were applied to the surface marks of the steel to the steel. From the results of the experiments, four pairs of curves were plotted for each column—one pair for each of the bars. These curves are given in full detail in the paper, and their peculiarities are discussed. Besides the main experiments, others were carried out to compare the effect of loading round the steel with the effect of loading at the end of the column, and when stresses in the steel and concrete were applied in the centre. This enabled a comparison to be made between the effect of having the load transmitted directly to the ends of the bars, and having it communicated to the bars through the holding grip of the concrete. The result showed practically no difference. The experiments to find out the value of the modulus for the steel and concrete yielded values respectively of 30,200,000lb. and 1,535,000 per square inch. A further set of experiments carried out to determine the intensity of the frictional grip of the concrete on the steel resulted in values ranging from 300lb. to 600lb. per square inch of bar surface to cause slipping. The stresses in the steel and concrete, calculated for working load of 13½ tons, which the columns were designed to carry, were found to be respectively 437lb. and 8,650lb. per square inch. This gives a load on each bar of 1.7 ton, and, comparing this with the load required to push one of the bars through the concrete, the intensity of the frictional grip, it is evident that from this point of view there could not have been any slipping of the steel in the concrete. The author considers that the manner in which the strain measurements were made proved very satisfactory, and that the method might be extended to other cases. A careful inspection of the plotted diagrams appears to show that, when all the effects of eccentric loading have been eliminated, there is no evidence to indicate that slipping took place, and it is evident that in columns of this kind, made up with plain smooth bars, the two materials behave like one so far as their strain effects are concerned.

COMPOSITE COLUMNS OF CONCRETE AND STEEL.

By William Hubert Burr, M.Inst.C.E.

The effect of a concrete filling on increasing the carrying capacity of a steel column having never been sufficiently investigated, the present series of tests were carried out by the author. The columns tested consisted first of two types of built-up columns of plain steel, and secondly of exactly similar steel members filled with concrete. The reinforced-concrete columns were filled with 1:2:4 concrete, and were tested at 18 months. The steelwork consisted in one case of four vertical steel angle-bars arranged as the four corners of a square, and braced together with lattice bars to form a square column 6½ in. in exterior dimensions, and in the other case of four vertical channels arranged with their flats facing inwards, opposite sides of an octagon, and wrapped at intervals with batten-plates bent round in the form of an octagon $\frac{1}{4}$ in. across the flats. Only the concrete lying within the exterior dimensions of the steelwork was included in the calculations. All the columns were 7ft. long. Four of each type were built—two filled with concrete, and two without concrete. The plain steel columns withstood an average total load of 67 tons on an area of 4 square inches in the case of the angle construction before failure, and of 68 tons on an area of 4.76 square inches in the channel construction, which were not so securely braced. The addition of concrete increased the maximum loads before failure to an average of 98 tons on a total combined area

of 42.25 square inches in the angle construction, and to 96 tons and 112 tons respectively on an area of 49.75 square inches for the channel bar columns. The modulus of elasticity of the steel being known, and the compression being measured, the modulus of elasticity of each column under successive loadings being measured, the modulus of elasticity of the concrete and the corresponding stress can be calculated. In the case of the angle bar columns, this modulus was 2,321,000lb. per square inch at a stress of 1,360lb. per square inch, but decreased as the stress on the columns increased. Finally, a description of the method of failure of the various columns is given, also curves showing the lateral deflection and axial compression. The author concludes by suggesting that the tests would justify working stresses as high as 500lb. to 750lb. per square inch in columns of this nature, and possibly higher stresses for structures of unusual magnitude.

THE PLANNING OF SCHOOL BUILDINGS.

A discussion on "The Planning of Elementary School Buildings" took place on Friday afternoon at the North of England Conference on Education, which was held at Armstrong College, Newcastle-on-Tyne. Ald. Sir Francis D. Blake, Bart., chairman of the Northumberland Education Committee, presided.

Mr. John E. Dogberry, headmaster of Christ Church National School, Newcastle, read the opening paper on the subject. He said our school buildings of to-day, well constructed and arranged with a view to their use, and standing on conspicuous sites, were witnesses of the growth of public ideas in regard to the education of the youth of the land. No longer was the school building the outcome of a haphazard provision of the buildings was now a charge upon the funds of the community. The speaker classified the structural features of the modern school, and enumerated the essentials to the successful working of a school. On the question of playgrounds he gave very elementary school should have as part of its routine of work. To this end, the provision of, whenever possible, grass fields should be provided for groups of schools, each school of which could use the space in turn, and that the playgrounds at the school should be limited in proportion. In conclusion, Mr. Dogberry said the trend of events seemed to point to the provision of smaller spaces, and to the recognition of the greater desirability of the more generally employed qualified class teacher; further, there appeared to be necessity for even more attention to the training of children in habits promoting health, and to the provision of greater air space and better ventilation.

Mr. G. Topham, F.R.I.B.A., of Moot Hall, Newcastle, architect to the Northumberland Education Committee, read a paper on "Principles of Planning and Construction." He said the Education Act of 1902 had marked a great step forward in the educational welfare of the country, and in no direction more important than that observed than in the matter of school buildings. The important question of school planning had entered upon a new era. That was due to the growing dissatisfaction with existing models, and an increasing recognition of the need for housing children under better conditions during their school life. In Northumberland they were doing what they should to help in the change. He considered that the number of classrooms should be seven for a school accommodating 350 children, and eight for a 400 school. No classroom should accommodate more than 50 to 55 children. What they aimed at was not a large body of dead air, but a more airy way of arranging the frequently changed. Accompanying the paper were plans of various elementary schools in the county, and Mr. Forrest, having compared and explained them, went on to say it would be well if architects made up their minds that they could get valuable assistance from school medical officers and other specialists, and were to act accordingly. He was of

GENERAL PRINCIPLES.

The whole case for good lighting is embodied in a very simple axiom, viz.: "The purpose of artificial lighting is to make readily and properly visible the things required to be seen."

This may be made more definitive by the following rules:—

1. The lamps or other sources of light to be so disposed that they do not occupy the field of vision.
2. The illumination to be sufficient to cause the objects to appeal at once and with comfort to the eye.
3. For general illumination the light to be well diffused, with a preponderating downward direction, freely flooding ceilings and walls.
4. Local lighting, to such as desks, benches, exhibits, etc., to be specially suitable, and in most cases adjustable in position and power.
5. The colour to be as pure and white as possible. Monochromatic light, as a rule, to be avoided.

These rules must be strictly adhered to. Curiously enough, some of our illumination reformers have advocated similar principles and straightway broken them in their next job. A false light makes a false impression, and an inferior, no less than a face, can only do its own self when naturally presented. It requires nothing more than common sense, and a consideration of the natural demands of any object to be illuminated, in order to produce truthful and agreeable results.

GENERAL V. LOCAL LIGHTING.

The relative merits of general and local lighting have been the subject of much discussion. Thus, a bank may have a general illumination, sufficient for desks and all purposes, or the desks may be locally illuminated with desk-lamps, from which a small amount of light may escape into the gloom overhead; or, again, there can be a combination of both. Daylight has been quoted as the standard in the form of general lighting and as the basis of all other systems; but when it becomes practical to provide artificial light equal in quality and abundance to that of freely admitted daylight, nothing could be said against it. It is a question of sufficiency of light, and of what shall be illuminated, each case needing special consideration. In the average public hall general lighting only would be the best, because the illumination at the working level, which would usually be sufficient at 1 ft. candle, could easily be obtained, and because it is desirable to exhibit the decorative features of a school- or reading-room would be a different matter. For a school, candles would be necessary, and to get this in general lighting may mean a fatiguing blaze of light and a large expenditure, while any varying needs could not be met. There are cases where all seeds are best met by local lighting only; but the most economical and satisfying way is usually obtained by a small measure of general lighting combined with an adequate and well shaded local lighting. General illumination may be broadly considered as of two kinds—direct and indirect; but there may be modifications and combinations of both.

Direct lighting is that in which the light radiates immediately from the source to the objects to be viewed. Where glass shades are used, it would still be considered direct lighting. This method is usually economical and convenient; but it should be used only where it can be made to accord with the foregoing rules.

In this connection, I would like to make some remarks upon shades and shading. The art of shading consists in the use of shades that will afford complete protection to the eyes, with a minimum loss of total light, to produce better illumination and to increase visual acuity. The word "shade" implies mere protection; but what are commonly called "shades" are ridiculous misnomers. They may be classified into (1) transparencies, (2) diffusers, and (3) real shades. It must be obvious that a globe, bell, or screen of glass, that is transparent, or so lightly figured or finished as to be nearly so, can afford no protection to the eyes, par-

ticularly to those who seek to find something "pretty" in it, and yet the greater part of the stock of the average fittings manufacturer consists of this sort of thing. In diffusers and transparencies the object is to distribute the intrinsic brilliancy of the light over the visible area of the globe or shade. Nothing does this more perfectly than opal glass, although with considerable loss by absorption. The transparent, and in the same object, and, although it passes over the surface, is usually less successful. Frosted or ground, iced, opaline, and the like are improperly counted as diffusers, for the light remains as a brilliant centre. But even the best of these, the opal and the prismatic, are commonly from 20 to 100 times too brilliant to be constantly before the eyes. On the other hand, they are often needless darkeners and wasteful. For instance, the surface of an ordinary 8 in. globe is nearly 200 square inches. It is placed, say, on a bracket. It will be seen by anyone that not more than about 35 square inches is employed in screening the light, and yet the globe, at the whole 29 in., for the sake of 35, is made to be effected by opaque or semi-opaque screens, the latter passing not more than 1-10 candle-power per square inch—just enough to cover the bare lights, and no more. By far the greatest proportion of light will, by this means, simply and directly flood the ceiling, walls, and other objects, and the practical result will be a pleasing and soft effect, with easy discernment of detail. Reflectors are sometimes used with great advantage, particularly those of opal and prismatic glass, which both reflect and refract; but they should only be used where they are essential to a required result.

Indirect lighting is that in which the illumination is obtained from surfaces illuminated by concealed lights. It usually presupposes a white ceiling and upper walls or other extensive diffusing surfaces—the larger the better. The results are great uniformity of lighting, approaching practical daylight more nearly than with any other system, while admitting of greater discretion of vision and affording comfort to the eye. It has been objected to this form of lighting—(1) that it has a cold and cheerless effect, (2) that there is a flatness and an unpleasant absence of shadow, and (3) that light is wasted by absorption. With regard to the first, if by "cold" is meant whiteness of light, it is a point gained. Nothing but prudence could prefer coloured light. The ruddy glow of evening may be very beautiful, but we should not like to have it all day. As to the second, that it is flat and shadowless, it is really not true. Indirect lighting does not mean that light is lost by absorption of shadows, just as daylight does, which puts a soft gradation on relief. With regard to the last, it is a fact that of the total flux of light a considerable percentage is absorbed; but it is also a fact that more light enters the eye than by a higher intensity of direct illumination, and, as stated, vision is much easier. The means that may be employed are as lamps—providing the use of the right kind—tungsten glow-lamps or incandescent gas in inverted bowls or reflectors on pendants or brackets, or lights may be hidden behind cornices, screens, or in many other forms. Where there is not a suitable ceiling, downward reflectors will be required; but to maintain the principle, they must be large and with a diffusing surface. It is absurd to put them under a good ceiling, as is often done.

PHOTOMETRY AND ILLUMINOMETRY.

Photometry, as we have known it for a good many years, has been confined to the laboratory, and consisted mainly in the determination of the candle-power of lamps; but in recent years the illumination of the work of the architect or illuminating engineer has been much facilitated by the recent introduction of very convenient measuring instruments known as "illuminometers." These instruments are of two kinds—LAMPS AND POLAR CURVES.

Where the choice of an illuminant is possible, preference is largely a matter of circumstances, and not of principle. The hydraulic question, so much discussed, must be asked: In what type of room, where would the illuminant be used? Nothing to fear therefore on the medium-ventilated room. Although the lamp is an engineering device, it is a fundamentally concerned with architectural considerations, and the merits of its choice should be open to the architect, and not merely to the engineer. To acquaint himself with the characteristics of the features of the leading lamps now before the public. To do so, of course, would create dispute; but the architect is advised to accept no statement from interested parties without guarantee of independent proof. Then there are the sizes of the lighting units to be decided upon, and of course opinion, however experienced, is often only fully prepared figures. Finally, there is the form of lamp and the question of polar curves. The nominal candle-power of the lamp, although correct in one direction, affords no idea of its total yield; hence the actual duty of the lamp is not truly shown by mean spherical candle-power or given in lumens.

DECORATION, WALL-PAPER, AND REFLECTION.—(1) The illumination as expressed in candles or lumens—i.e., the light falling on a surface, irrespective of the nature of that surface; and (2) the light-absorbing power of the surrounding surfaces. When an architect decides upon dark oak panelling or deep red wall-paper, does he fully realise the extent of its effect upon the lighting, or would he put as much as three times the illumination in such a room than in a room with light decoration? Where is the wall-paper that has printed on the back of it: "Avg. co-eff. refl. 0.42;" or whatever the co-efficient of reflection may be? The factor of reflection is of more importance in the illumination of a room than generally realised; indeed, without some reflection illumination would be absolutely nullified; the lamp might shine, but darkness would reign. What we do see depends entirely upon the specific absorption of the surfaces before us, both as to luminosity and colour. One foot-candle on a white surface would do more than 200 foot-candles on black velvet. The following are a few co-efficients of diffuse reflection selected from Dr. Loeb's Bell's lists:—

| | Per cent. |
|---------------------------------|-----------|
| White blotting-paper | 0.82 |
| White cartridge | 0.59 |
| White yellow paper | 0.62 |
| White clean wall | 0.40 |
| Yellow painted wall—clean | 0.40 |
| Black velvet | 0.20 |
| Pale pink paper | 0.25 |
| Vermilion or blue green | 0.12 |
| Deep chocolate | 0.04 |
| French ultramarine | 0.04 |
| Black velvet | 0.04 |

The rule for finding the total illumination due to the lamp plus the reflected reflections, in the simplest case of an end-on room, is—

$$\text{total illumination} = I(1 - k + k_1 + k_2 + k_3 + \dots)$$

where k is the co-efficient of reflection and I the initial illumination; k being less than unity, the above may be thus stated:—

$$\Sigma I = I - k,$$

from which it may be seen that if a room lightly decorated has a co-efficient of reflection of 0.7, the total flux of light on any surface would be 3½ times that of the initial illumination. If, however, we take a case of dark walls, etc.—say $k = 0.1$ —the total would be only 1.17—no increase worth speaking of. In practice, secondary illumination adds from 25 per cent. to 100 per cent. of that from the lamps. Of no less importance is the physiological aspect of contrast against dark backgrounds, to which I have already referred. In a room with dark, gloomy, depressing walls, and uniform white interiors are fatiguing to the eye (not to the mind; if white is used, it should be varied just as soft shadows vary relief surfaces). If a darkly decorated room requires more light to lighten it, such depth of colour serves no better purpose than to eat up electricity.

light. According to Fechner's law of sensation, contrasts in light and shade are relative and not absolute, and the relation being fixed we are unable to judge of all-absolute intensity; so that any scheme of decoration on a somewhat lighter scale may equally meet the artistic sense and afford considerable advantage in illuminating value. The eyes seek relief and rest, and the darker part of a room, where the value of reflection is small and where the eye more naturally falls, is the best place for darker areas. Hence, floors should be dark, and dadoes are desirable, but not in too strong contrast to the upper walls.

PRACTICAL APPLICATION.

This paper will be concluded with a few notes on the practical application of the foregoing to churches, schools, hospitals, public libraries, and factories—chosen to afford as large a variety of treatment as possible will allow. The important subject of domestic illumination was too large to be included in this paper.

Churches.—The simple minded person would suppose that the beautiful decorations of many churches are placed there to be seen; but go into the first church you may meet, during full evening service, and you will probably find that the upper two-thirds will be lost in a gloom that is heavy and depressing, while the lower third will be largely obscured by dazzling points of light, and the chancel scarcely visible; every face will have a hard, patchy appearance due to want of diffusion, and if the preacher is at all interesting two inexorable pulpit-lights will send you home with smarting eyes. It is not a question of brilliant lighting versus the mystic gloom which some architects have advocated as conducive to worship. The "dim religious light" of a morning service may have its charm, being usually relieved by softly illuminated surfaces that can be seen with comfort; but the obscurity of an evening service, pierced by obtrusively brilliant points that dominate everything and leave the lower level to the eyes is not likely to be helpful to worship, excepting by way of penance. This is but one point of consideration amongst many to be found in church lighting. Treatment will depend upon the style of architecture and many contingencies. Sufficient light for practical purposes is the first consideration. If foot-candles at the peak level, the eyes will see comfort, and another is to make the building and its decorations easily and agreeably visible—a quiet, general light is all that is required. Chancels are effectively illuminated by lights behind the chancel arch or other projections; the Guards' Chapel in St. James's Park is so treated, and has a sublime effect; the pulpit and reading desk require 4 ft. candles. Notices and inscriptions should be illuminated. Avoid what has been already described as decorative lighting.

Schools. I have examined a number of modern Board Schools, and, generally speaking, have found the artificial lighting to be insufficient; (a) too uneven, having usually but four gas or six electric glow-lamps to a class of 40 children, and these too near the source of the room; (b) the classrooms unprotected lights in nearly every case in the direct range of vision of both scholars and teachers; and (c) the Blackboard, which needed more, really had less light than elsewhere to say nothing of the glass. Dealing with the classroom only, there are three methods of lighting, either of which may be made satisfactory:—A—Indirect illumination by high power lamps illuminating a white ceiling and frieze. B—Direct lighting from ceiling lights pendant about 2 ft., to get diffused light from ceiling, and not placed generally but nearer the 1 ft. hand window.

If pendants, reaching to 6 ft. 6 in. or 7 ft. from floor, are used, the eyes will be used, there should be eight or ten where there are now four or six, and each should have opaque shades in which the light can be entirely recessed. If another well-known form be used it will serve also for general illumination, for it will be seen that the ceiling and walls are fully illuminated; the eyes will be

protected and the greater intensity concentrated on the desks, where it should be a minimum of 3 foot-candles. For pencil drawing and needlework special desks or tables should have an illumination of 8 foot-candles. The wall at the teachers' end is the exhibition screen, and should be specially lighted with screened lamps giving an illumination of 5 or 6 foot-candles.

Hospitals.—It has been my privilege to inspect many of the principal London hospitals with special respect to their lighting arrangements, and where everything else is so very admirable the artificial lighting reminded me of Miss Nightingale's trenchant observation that "the very first requirement in a hospital is that it should do the sick no harm." There is, obviously, a universal want of discrimination in the modes of lighting, the fittings were generally found to be inappropriate, and the "shades" afforded no relief to the stinging points of light that were exposed to the eyes of the sensitive patient, and that to the lower and poorer part of the eye. Really, if the unit, say 20 beds, should be provided with a general illumination of about 0.5 foot-candles, with protected or indirect illumination. The sisters' and nurses' tables should have lamps adjustable—without dusty cords—to from 3 to 8 foot-candles, the latter for dark needlework, with dark shades that will entirely recess the lamp, preferably dark green caps. The patients' lights should be conspicuous by their absence, the nearest light, usually a single glow- or gas-lamp, being 12 ft. or 14 ft. distant. There should be a screened light at the head of each bed, placed low behind and on one side of the head, giving illumination of 3 foot-candles, and adapted for use for medical examination. The dispensary is usually the worst served. Dispensers have complained of the worry of reading the prescriptions in the inadequate light, while many bottles stand in semi-gloom. A shaded light, giving 4 or 5 foot-candles, is required to each man; the shelves should be illuminated with screened lights. The special facilities for the chemist, reading, the graduated measuring-glasses. The operating theatre calls for special consideration, for there is a large amount of surgical work done after dark. Here, again, there is no established form of lighting, each hospital having its own arrangement—not by a long way the essential to success may be thus summarised:—(a) White ceilings and walls, pale grey or green dado and darker floor; (b) separate general illumination with screened lamps over the sinks and sterilisers; (c) the lights to the operating-table should not be clustered together as they commonly are—forming black shadows—nor too close to the patient; (d) the light over the surgeon's work is obscured by his own head and hands; (e) lamps must not radiate heat on the patient or on the surgeon's head; and (f) all septic risks must be avoided; therefore, there must be no dust creating cords and pulleys or fittings, and glass must be smooth and easily cleaned.

Factories.—The following are the three:—(a) direct lighting, white flame arcs placed over a diffusing ceiling light, or, where there is no skylight, indirect lighting—both affording a splendid light. There is an excellent scheme in practice in Germany, wherein isolated beams of light are concentrated on the table from a projector lamp outside the room, so that heat, dust, and the intrusion of workmen are quite precluded.

Libraries.—There is, perhaps, no greater tax on nervous energy than the continuous reading of educational literature. It is important, therefore, that the further burden of eye strain should not be imposed on the reader by misplaced and inadequate lighting. Better the plainest building where the books can be read in comfort than a marble mausoleum of literature that chills enthusiasts and wears out the eyes. I have seen many handsome libraries, but not one properly illuminated. The ordinary library requires a small measure of well diffused general lighting—0.5 to 0.75 foot-candles. The principal feature, however, is

the local lighting, which should consist of:—(1) A separate light to each reader—on his left—with an opaque or semi-opaque shade; (2) every desk lamp should be adjustable so as to permit of a modification of from 2 to 10 foot candles, and under the reader's control; anxious librarians may have them made "fool-proof"; and (3) the reader should be expected to switch on and off his own light, which would effect a great saving. The new stands are always well patronised. A good light is wanted for them, as newspapers are not so easy to read as a clearly-printed book. Where will you find book-racks so illuminated that the titles can be deciphered without practically having to dab one's nose on the books? Where is the glazed index in the leading department that can be read without being bothered with gloss? Do architects ever think of the irritation caused by the upward reflection from polished table-tops? There are many other points, but we must leave this for our last subject.

Factories, Workshops, and Mill and the only country that has framed an Act that only stipulates the amount of light to be provided, and where such as embroiderers, jewellers, and draughtsmen are required to have a minimum of 15 bougie metres (about 1½ foot-candles), and all others 10 bougie metres. British legislation is confined to illuminating the work of the ignorant hkehousekeepers, which are, respectively, to be "efficiently" and "adequately" lighted; expressions which mean nothing in particular, and therefore useless. Definite legislation is urgently necessary, for there is still an overwhelming majority of workers under conditions that are dangerous to eyesight and health. In machine shops the majority of accidents are said to occur after 4 p.m.; and no wonder, for brilliant points of light against a dark background must baffle the eyes and deceive as to distances. What is wanted is a well diffused general light, aided by whitened and illumined ceilings and walls. Nothing better for the purpose than direct lighting. Screened local lighting should then be added to all points requiring the attention of operatives and to benches, desks, etc. Money spent in a liberal lighting of factories and workshops is repaid a hundredfold in better and more work.

In conclusion, I am glad to have had the opportunity of bringing this subject before the members of this Society, for I am convinced that until the architect makes the subject his own little good will be done. True progress is, at present, blocked by the rivalry of competitive systems, and the jealousy and greed of commercialism. The client needs an independent authority, and who more suitable than an architect who thoroughly understands the art of illumination; for as no one can better know how to light his picture than the artist who painted it, so no one can better appreciate good lighting of an interior than the architect who designed it.

ORNAMENTAL CEMENT WORK.

Cement work as an art-craft has hardly yet received the attention it will repay, and the result is often misapplication of the material, or its neglect, or remission to those whose ignorance or lack of culture are responsible for some of the monstrosities with which most of us are familiar.

Mr. Wheatley's book will be of use to all who want to understand the real capabilities of the material. He describes lucidly the methods and tools best adapted for working, the art of mould-making, and the necessary templates used, the choice of ornaments, and other objects predictable, and the extended uses in building up details to which it is applicable.

There are eighty-one illustrations, and the author quotes in conclusion our own account last month of the "cement gun" shown at Farnham as an instance of new methods of working which a new substance like cement introduces.

* Ornamental Cement Work, by HENRY WHEATLEY, Farnham, Sec. Greenwood, and Son, 85, Broadway, E.C.4. Demy 8vo, 5s., Post free, 5s. 3d.

CURRENTE CALAMO.

We do not think the great majority of readers who, with us, will regret the reference back to the Council of the R.I.B.A. at the meeting on Monday night, of its proposals for the amalgamation of the Society of Architects, need despair. We are convinced that the majority of those who supported Mr. Stanley Peach's amendment are neither covertly nor conscientiously hostile to the amalgamation, nor to Registration. A residuum possibly is; but the feeble exhibition of its views that found expression on Monday night is not likely to find many echoes among men of good sense or good taste. The latter will continue to rejoice with us in the broadminded, statesmanlike policy of the Council of the R.I.B.A. which has been pursued with such wisdom and advantage during the past few years, and will trust implicitly to it to accomplish its end effectually and speedily.

It is neither our right nor duty to point out to-day how it should do this. The shortest way is obvious, and we are inclined to think that if the Council took it at a subsequent early meeting it would be endorsed by a more numerous attendance of members, and probably by a change of votes of some who will have had the opportunity of reconsideration. But the Council of the R.I.B.A. and that of the Society may legitimately and advantageously find another course profitable. "The resources of civilisation are not exhausted." It is not going to be said of British architects that when an opportunity arose of ending a cleavage in their ranks of twenty-five years' duration, and of uniting the whole profession in a resistless crusade on behalf of the due recognition of its members, and the attainment of their just rights, that it was lost by treacherous desertion or by querulous and vulgar cantankerousness.

As far as the draft Registration Bill—the acceptance of which formed the basis of the agreement which for the present is again in abeyance—is concerned it is an open secret that it commended itself entirely to few members either of the Institute or the Society. If it is found possible to drop it for the moment and proceed with the amalgamation, well and good. If not, there is, among many alternatives, a course open which able men of both the representative bodies have discussed, which might obviate every objection which has been raised, and soothe all susceptibilities. Its details we may not divulge to-day; but they will probably soon be made public, and put into practical shape, if present arrangements fall through. Meanwhile, the duty of all loyal members of both bodies is to trust their respective Councils, at the same time exercising with perfect freedom their right of private judgement, subordinated only to conscientious desire for union and Registration.

The delightful little exhibition of Early Venetian pictures and other works of art at the Burlington Fine Arts Club will afford those of us who have seen so many of them elsewhere a welcome opportunity of renewing our acquaintance, and those who have not should seize the opportunity, aided by the well-edited catalogue, which is a credit to the compilers. The exhibition is designed to illustrate in particular the work of Giovanni

Bellini (c. 1430-1516) and his scholars. It culminates in Giorgione (1477-1510), who died before his master, and whose most famous and authentic works—the *Castelfranco Altarpiece*, the "Landscape in the Storm," with the "Soldier and Gipsy," at Venice, and the "Three Philosophers," at Vienna—proclaim his artistic lineage. The committee are fortunate in having obtained the loan of another Giorgione—namely, Lord Allendale's "Adoration of the Shepherds," which has not been seen in public for many years, together with various pictures which illustrate the period before the maturity of Venetian art in Titian, Palma, Lotto, and others, who lived to break with the Bellini tradition.

Of the "Adoration," it is sufficient to say that the beauty of its design and landscape sufficiently stamp its genuineness. The panel comprises a landscape with a group of figures 10 to 15 in. high, relieved against a dark cavern in sandstone rock. In the foreground, to the right, the Infant Christ is lying on the ground with a white cloth spread under Him. To the right of Him the Virgin and St. Joseph are kneeling in adoration; the former wears a rose-purple tunic, a blue mantle and a white hood; the latter a dark violet tunic and an orange mantle. To the left kneels a shepherd with clasped hands; his brown hat is lying on the ground. Behind him another shepherd is seen approaching the Child, holding a cap in his right hand and a staff in his left. Both shepherds wear torn coats of many colours. From the left an evening glow is diffused over an idyllic landscape, and touches in succession, with shafts of light, hill and dale, towers and foliage, the sandy spits of a lake and rippling water, till it falls full on the infant Christ and the kneeling figures of his father and mother. A winged cherub's head hovers above them lit by a ray of light, and illumines the edge of the gloom behind. Two more radiant cherubs' heads are above the shepherds. In the cavern the heads of the ox and the ass are dimly seen. From the upper left corner an angel descends, bearing the tidings to the shepherds, holding in his hand a scroll on which is inscribed "Gloria." The whole forms a combination unexcelled by any other of the characteristics of Giorgione's work, which are so unmistakable.

Among the many lent by Mr. R. H. Benson is the interesting "Primrose Path of Dalliance," which some thirty years ago was described at one of the Academy winter exhibitions as "Malatesta and his Mistress Receiving the Pope's Legate," and attributed to Giorgione. Also, his "St. Jerome Reading," an undoubted Giovanni Bellini, signed and dated. Of the rest, probably the least familiar are Mr. Fairfax Murray's "St. Sebastian," by Antonello da Messina; Sir George Holford's "Head of a Boy," by Bellini; Mr. J. Annan Bryce's "St. Mammas thrown to the Beasts," attributed to Joseph Bellini, or his school; Sir Henry Howarth's "Rest on the Flight into Egypt," a very fine Previtali; and Mr. W. M. de Zoete's "Christ at Emmaus," an early Jacopo Bassano, which is given a place for the sake of its former but erroneous attribution to Marziale.

The magnificent examples of early glass and enamels lent by Mr. Otto Beit and Mr. George Emorofopoulos are of great value and interest. The small Saracenic 14th century beaker is a little gem of its kind. The Arab

glass lamp, probably from a Cairo mosque, and of the period of the Mamluk Sultans, is as curious as it is beautiful. It is enamelled in colours and gilt, with two broad bands of Cufic inscription, the lower one in white glass (formerly gilt) reserved in deep blue, the upper band in deep blue interwoven with white enamelled scrolls, and four smaller bands of floral pattern broken by circles delicately traced in red. At the widest part are six loops for suspension. Height 4 1/2 in. But every object in the case in which the foregoing are shown is an incentive to a breach of the tenth commandment! Some of the other exhibits are worth inspection, among them Mr. C. H. Read's small hexagonal ewer of copper gilt, which stands on the gilt casonne, probably made in Venice by Arab workmen early in the 16th century.

There are some welcome exceptions, but, as a whole, the Royal Society of Portrait Painters' exhibition at the Grafton Galleries is not very inspiring, and we have seen most of the best things before. Among them are Mr. J. J. Shannon's portrait of Joseph Hofmann, Mr. Maurice Greifenhager's "Lady in Grey," and Mr. J. G. Sargent's "Lady Faudel Phillips." Neither Sir C. J. Poynter's portrait of the late King, nor Sir L. Alma-Tadema's portrait of Mr. William Whitaker Thomson, nor Sir H. von Herkomer's "Portrait Study" will be over looked.

M. Lepine, the prefect of police in Paris, has issued a decree forbidding the throwing away in the streets of handbills, printed or unprinted, and of objects and substances capable of dirtying or obstructing the public highway. All caught in the act of causing a litter will be amenable to penalties. We hope they will be enforced rigorously, and that London will follow suit, though we do enforce the penalties we do not know. The London County Council can hardly be trusted, while it is an accessory to the strewing of the streets with its used tram-tickets at its terminal stations.

What is a "hypothetical question"? Mr. James Rhodes, of Colmore-row, Birmingham, wrote to the Inland Revenue people at Somerset House last Friday, asking whether the contributions of employers for insured persons under the National Insurance Act, 1911, will be allowed as a deduction from trade and other profits when arriving at the sum assessable for Income-tax purposes under Schedule D; also whether any contributions made by any employer other than in respect of trade and other profits will be allowed as a deduction from other income as well, and relief granted from Income-tax in respect of same, and exemption or abatement of income tax allowed as well in respect of same. That is a question many large employers must be asking presently. Who is to answer them we do not know. It is no use writing to Somerset House, for the secretary has been "directed by the Board of Inland Revenue" to acquaint Mr. Rhodes that it is contrary to their practice to answer hypothetical questions, and in these circumstances they cannot undertake to deal with his enquiries. We suggest that every employer should at once write to his Member, and ask him to put a question as soon as Parliament re-assembles.

In connection with our recent remarks on this page it may interest some readers to

know that a national conference on the reform of the party system, so as to secure for the whole country in both Imperial and local affairs, effective representative government, will be held at the Caxton Hall, Westminster, S.W., on Friday, January 26, 1912, promoted by the Independent Political Association, 1, Victoria-street, Westminster, at 10 a.m. At the first session, 10.45 to 12, Dr. C. W. Saleeby, F.R.S. (Edin.), will propose: "That the present constitution and administration of the Government Departments for the Army, the Navy, Agriculture, Education, Local Government, and other national services are rendered more costly and less efficient than they should be, on account of the charges incident to the party system of Government, and that in the interests of efficiency and economy such services should be supervised by standing committees, irrespective of political party." At the second session, 12 to 1 p.m., Mr. Cecil Chesterton will propose: "That the party system conduces to the growth of bureaucracy, which is specifically calculated to deprive the people of self government, and, by increasing the number of non-productive officials to an unnecessary extent, places continually increasing burdens on the people of this country." At the third session, 2.30 to 3.45, Mr. Hilaire Belloc will propose: "That this conference is of opinion that no real political independence or honesty can be exercised while party funds are used for corrupt purposes, and it therefore strongly advocates and recommends that the system of secrecy in dealing with such funds shall be legally abolished, and that the further use of such funds be subject to publicity and audit." At the fourth session, 3.45 to 5, Mr. J. St. Lo Strachey will propose: "That the party system, by which members of Parliament vote according to the instructions of the party whips, is degrading to any intelligent member. That the selection of candidates by a party caucus is an insult to a constituency, and that real and effective representative government can only be secured by a non-partisan organisation, promoting or assisting the election of independent Members of Parliament, who pledge themselves not to accept the party whips." Rev. Charles Voysey, B.A., will second. Discussion will follow each resolution.

In the main promenade corridor of the town hall at Preston there has been unveiled a memorial bust to the 16th Earl of Derby, K.G., Guild Mayor 1901-2. The bust is of white marble, and has been executed by Sir W. Goscombe John, R.A.

The death occurred on Thursday last week of Mr. Edward Fuller, founder and principal of the building firm of Messrs. E. Fuller and Sons, of Faversham. Mr. Fuller, who had reached the age of 83, had long been in failing health, but his death was only preceded by a week's confinement to bed. He was a native of the town, and started business on his own account nearly forty years ago. Eventually, assisted by two of his sons, he made the enterprise one of the largest building concerns in the district.

The Bristol City Council, having made a housing order under the Local Government Board Planning Act, prohibiting the use for human habitation of certain dwelling-houses, Nos. 1, 2, and 3, Tippett's-court, the Horsefair, St. James, and the owners of the houses having appealed to the Local Government Board against the order, Mr. Wm. H. Collin, L.M.B., Bristol, held an inquiry at the Council House, on Friday, to receive the evidence of persons interested in the appeal. Evidence in support of the owner's contention that the houses were now fit for habitation was given by Mr. C. H. Tucker and Mr. E. T. Parker, surveyors and estate agents, and by Dr. M. G. Dobson, while the contentions of the city council were maintained by Mr. J. W. Kirby, chief inspector of nuisances, and by Dr. D. S. Davies, the medical officer of health.

THE TENDENCY OF RECENT MODIFICATIONS OF THE LANDS CLAUSES ACTS.*

By FRANK W. HUNT.

When reference is made to the Lands Clauses Acts in many cases the Act of 1845 is intended. This Act is one of the products of that period of Parliamentary activity extending over the period between 1840 and 1850. Its object is aptly set out in the preamble, repealed by the Statute Law Revision Act, 1893: "Whereas, it is expedient to comprise in one general Act sundry provisions usually introduced into Acts of Parliament relative to the acquisition of lands required for undertakings or works of a public nature, and to the compensation to be made for the same, and that as well for the purpose of avoiding the necessity of repeating such provisions in each of the several Acts relating to such undertakings as for ensuring greater uniformity in the provisions themselves . . . the provisions we know as the Lands Clauses Acts, 1845, were enacted. It is to be observed that the Act does not purport to repeal the Acts which collect and codify those provisions usually inserted in Acts for the compulsory purchase of lands. The Act was passed as the result of the labours of a Parliamentary Committee appointed in 1844, and forms the basis of the law of compensation. If a further definition of its objects is required, it may be found in the words of Lord Blackburn: "The Lands Clauses Consolidation Act was passed to make a general code regulating the manner in which lands might be taken under the authority of Parliament and compensation made for the same, by what was then legally required by the Legislature." The Act was passed over sixty-five years ago, and it would indeed be surprising if the experience of two generations had not shown that certain of its provisions required amendment, and such amendments were in fact frequently made. A reference to the model Bill, however, hardly shows that slight extent such modifications have proved acceptable to the authorities of the House. It is not proposed at this stage to refer to them in detail, but those embodied in the model Bill will be indicated when discussing specific amendments later on.

A careful consideration of the framework of the Act, the judicial decisions upon it, and the practice that has grown up under it, shows that the principle and practice may be briefly stated as follows:

- (1) The power of compulsory expropriation not to be exercised except by authority of Parliament, to whom an owner may, if he desires, appeal.
- (2) The lands to be taken are restricted to what is actually required for the undertaking.
- (3) An owner is entitled to be paid the value of the property to him at the time of the inquiry and compensation for damage resulting from the taking of the lands, irrespective of any benefit he may, in respect of other property belonging to him, obtain by the execution of the works.
- (4) The addition of a percentage to the value of the land taken as compensation for compulsory purchase amounting at the least to 10 per cent. on that value.
- (5) The owner has the right of selecting the tribunal to settle the case in the event of no agreement, including the right to a jury, which, under the Act, is the normal tribunal.
- (6) An owner cannot be compelled to sell part of a house, other building, or manufactory if he is able and willing to sell the whole.

It is proposed to deal with these principles seriatim and to ascertain in what way more recent legislation has modified them.

(1) Although not strictly a modification of the Lands Clauses Act, a very important change has of recent years been made in the manner in which the Acts can be applied. When passed, the usual way was by incorporation in a special Act, which conferred upon the promoters the right to enter upon

take, and use certain lands defined on deposited plans. The Acts were also incorporated by way of Provisional Orders granted by one of the departments of State and confirmed by Parliament.

The machinery of a special Act ensured that generally, no owner, if he objected, could be expropriated except by the direct authority of Parliament, although there were a few exceptions existing even in 1845. This machinery in later years was considered to be cumbersome and expensive, and we have seen during the last few years the development of a system, granted by means of orders made by public departments without the necessity of recourse to Parliament. An example of this is seen in the Housing of the Working Classes Acts. The Consolidating Act of 1890 provided that all schemes under Part I, i.e., large clearances of slum areas, should be made the subject of Provisional Orders and an Order so made "shall not be of any validity unless and until it has been confirmed by Parliament." In the amending Act of 1903 the necessity of confirmation by Parliament was removed in certain cases. When we reach 1906, for the first time, the substance of this point repealed, and an Order of the Local Government Board, sanctioning a reconstruction scheme and authorising the compulsory purchase of land for the purpose, taking effect without confirmation by Parliament. Similarly the compulsory purchase of land for the purpose of urban sanitary dwellings under Part III. of the Act of 1890 was made possible by means of a Provisional Order confirmed by Parliament under the Public Health Act, 1875. In the Housing and Town Planning Act, 1909, land required for similar purposes can be purchased compulsorily under an order submitted to, and confirmed by, the Local Government Board. The First Schedule to this Act prescribes the steps to be taken to give owners of property proposed to be acquired an opportunity of making known their views; and, if objection is made, not withdrawing the inquiry, but to cause a local inquiry to be held, when all parties interested may attend and be heard. The same machinery is available under the town-planning section of the Act for a responsible authority to acquire compulsorily land comprised in a town-planning scheme. The Small Holdings and Allotments Act, 1907, is another recent statute which enables a Department of State to make an order putting in force the provisions of the Lands Clauses Act. The machinery as to objection and local inquiry is the same as in the case of the Housing Act, but the order when confirmed by the Board of Agriculture has the effect of an Act of Parliament. This statute, however, applies not only to the purchase of land compulsorily, but also to the compulsory hiring of land for a period of not less than fourteen nor more than thirty-five years. There are certain limitations set upon the order, but the order when confirmed under an order made under the Act, which codified the law dating back to 1887, The Development and Road Improvements Funds Act, 1909, extends the principle further by placing the making or confirmation of an order in the hands of the Board, the commissioners constituted for the purpose of that Act. So far as these purposes relate to the "economic development" of the United Kingdom, under Part I. of the Act, a limitation on lands that may be compulsorily acquired is imposed similar, in its application, to that in the Small Holdings Act, 1907. For the purposes of Part II., relating to road development, the Road Board constituted under the Act may put in force the Lands Clauses Act by obtaining an order from the Development Commissioners with a similar limitation in respect of land on which the order is made, but apparently not to the site of the road itself. There is a further class of Acts where in effect compulsory powers are exercised without the necessity of the authority exercising them obtaining the approval of a confirming authority. Under the London Building Act, 1894, the London County Council may determine on the laying out of new streets or the adaptation for use for carriage traffic of any way not previously so used, that the

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Jan. 8, 1912.

feet shall be of a greater width than 40 feet. In that event the owner must set back accordingly, and compensation is payable. Similarly, under the same Act, when buildings which project beyond the general line of buildings in a street are taken down to an extent exceeding one-half the cubical content, the owner may be required to set back to the original line and compensation is payable. The owner may, however, be entitled to compensation for any damage and expense he may sustain thereby. The powers conferred by the Tottenham Urban District Council Act, 1900, however, extend further than this. This Act is merely typical of many others conferring almost exactly the same powers. The Council may prescribe and define in any street the line of the frontages of the buildings in that street, which in their opinion is narrow or inconvenient, or without any sufficiently regular line of frontage, a line of frontage to be observed on either side of such street. The line so prescribed must be shown clearly on a plan which must be deposited and deposited for inspection by the public at all reasonable times without charge. One month before the line is formally defined notice must be served upon all the owners interested whose names and addresses the Council can ascertain. No new building or obstruction is to be placed within the centre of the street than the prescribed line. Compensation is payable and betterment is allowed. This procedure raises an important question as to the advantage of the adoption from a purchasing authority's point of view of a plan showing in advance lines of proposed improvements. It has been discussed often, and is strongly urged for its adoption is the great advantage of the result, from the laying down of a comprehensive scheme of widenings and new thoroughfares, the existence of which would be widely known and which would enable owners in redeveloping estates to conform to its general lines. The disadvantages are obvious to those who would be anxious to purchase. No doubt, so long as the law remains what it is, there will always be those who would be tempted to make such arrangements with regard to property likely to be affected that the cost of an improvement would be so considerably enhanced as to become prohibitive. In the Liverpool case, however, the powers were made to apply to the existing buildings extending in front of the prescribed line. The owner is empowered, if requested by the corporation so to do, to enter upon premises, notwithstanding the existence of leases, to carry out the order of the corporation. Compensation is payable, and an arbitrator may determine, without detriment to the remainder, what part less than the whole is required. There are many more instances of the same kind, where compulsory powers for the acquisition of property for street widenings are enforced merely by the resolution of the authority exercising them, six cases occurring in a session of 1908; but those I have mentioned indicate the tendency in this direction.

(2) The lands to be taken compulsorily by promoters were, under the Lands Clauses Act, 1845, restricted to what was actually required for the undertaking, and special provisions were inserted giving to owners a right of compulsory purchase in certain cases to the rights of promoters. Local authorities have long been treated on a different basis, as long ago as 1866; although as recently as 1900 it was decided that a local authority had no power to acquire land even if shown on the deposited plans and described in the book of reference, merely for the purpose of reselling them at a profit, and acquiring them for a plaintiff's property not actually required for the undertaking was in question. In construing an Act conferring compulsory powers of purchase, a distinction has always been made as between a company and a local authority. This was clearly shown in a case decided in 1884. From the judgment it appears that promoters gathered that the principle that promoters

who seek to put into operation powers of compulsory acquisition of lands can do so only for the purposes for which they are authorised to take the land, "applies to a railway company, and also to a municipal body who have power to take lands compulsorily, that the acquisition of lands is not, but that a railway company is chiefly seeking profit in the transaction, whereas in the case of a municipal body profit is not their object, in construing the Act of Parliament a greater liberality has been shown towards a public body, such as a municipal corporation or the like, than towards a private body, such as a company, which looked upon more as a body of persons specculating for their own benefit."

The early improvement Acts generally extended only to the property cut by the line of the street, but no doubt from time to time there were exceptions which were not objected to. In 1877, however, in connection with some important improvements in London authorised by a new Bill passed by the House of Commons with a clause enabling the purchasing authority to acquire such of the lands shown on the deposited plans as they might deem necessary for the purposes of the improvement and for providing space for the erection of houses and buildings, the House of Lords raised a question was the first occasion when a recoupment scheme, as understood to-day, was submitted to Parliament; and when the Bill reached the House of Lords, that House desired to exclude from the Bill the power to take any other lands than those which were required for the purpose of the improvement. A difference arose between the two Houses. The ultimately the difference was arranged the principle of recoupment was recognised and established; the clauses were restored, and have been applied ever since, with, as we shall see later, a further extension. This question was subsequently considered by a committee of the House of Lords in 1890 when the principle of betterment was in the process of being settled by Parliament. The Committee heard evidence at great length upon the comparative methods of executing large improvements i.e., the competitive method of betterment versus recoupment, and the distinction between them was well considered, and so well established as part of ordinary procedure had the innovation of 1877 become, that we find the House of Lords Committee suggesting a much greater advance in the application of the recoupment principle. They ultimately reported on the subject as follows:—“The Commission received evidence upon what has been called

to a municipal or other public body to take land beyond what is necessary for the actual execution of the work, so that some part at least of the improved value may be secured by the improving public body in case of the reversion upon the ratepayers. Some evidence was given as to the desirability and convenience of the operation of such a system, the general effect of which was that it had not proved successful; but the committee are not satisfied that it has ever been tried under circumstances calculated to make it successful, inasmuch as no sufficient power has ever been given to the public body to acquire or possess of the improved properties without buying out all the trade interests, a course which is inevitably attended with wasteful and extravagant expenditure. It is believed that the bold conception of Kingsway and Aldwych was justified to some extent by the provision, and subsequently the large clearance, of the neighbourhood of the Houses of Parliament were supported on the same grounds. Not only was the principle allowed to a public authority, but in 1906 a company was authorised to acquire compulsorily a large area in Westminster, in effect being an addition to the extensive scheme for widening London's thoroughfares of a public authority some few years previously. Bearing upon this recommendation of the 1894 Committee, which was presided over by Lord Halsbury, and comprised several members of the legal profession, the question arose whether promoters were to be allowed to acquire only certain interests in a property, or whether they must purchase the whole of the

interests residing. To enable the promoters to carry out the plan before the Committee was called upon to report, it was suggested that the effect that under Section 18 of the Land Clauses Act, 1845, notices must be served upon all persons interested, in the case of a lease, should be served upon any view which would be likely to be taken to have been held by the learned counsel. It was admitted that there was no judicial authority on the point, but it was suggested that, as a matter of practice, of course, notices are served upon all persons interested. It was further suggested that, for example, it is known that any interest of short duration, and that the promoters have powers are sufficiently wide to enable them to execute the works at some date in the future beyond the period of the lease. The promoters have, of course, the power of having arranged terms with the promoters, and the promoters have obtained powers to execute an important work within times limited in the special Act.

(To be continued.)

CHIPS

A group of municipal courts is approaching completion at St. Louis, U.S.A. It is classical in design, and has been erected by the C. L. Gray Construction Co., from designs by Mr. Taylor, a local architect.

At the parish church, Epping, Essex, a new font-cover has been given as a memorial to the late Mr. Alfred Dean. It is of steeple pattern, and of fumed oak relieved by gilding, the height being 8ft. The cover was designed by Mr. C. G. Hare, successor to the architect of the church, the late Mr. G. F. Bodley, R.A.

The Bishop of Winchester has just consecrated the new district church of St. Mary the Virgin, Burgh Heath, in the parish of Banstead. The church, which was built from designs by Mr. Alick Thomas, of London, was dedicated by Bishop Ryle in January, 1909. It accommodates 350 people, and has cost about £5,500.

An important development in connection with the construction work of the Canadian Northern railway has been made public through the award of a contract to Messrs. Moore and Pethick, of Vancouver, for the construction of forty miles of road on Vancouver Island. The value of the contract is estimated at 600,000 dollars.

Mr. J. E. Swindlehurst, the city engineer of Coventry, has prepared a statement of buildings approved and completed in the year ended November 30 last. In all, 1,630 plans, 1,386 being for houses, were approved; and forty were for factories and workshops. There were completed 1,211 houses and four schools, the total number of completed buildings being 1,390. Nineteen new streets, having a total length of two miles one furlong, were taken over by the corporation in the year.

According to a report of the American Consul at Victoria, B.C., the British Columbian Marine Railway have completed financial arrangements for the construction of a graving-dock at Esquimalt which is to be 1,000 ft. long and will be constructed on similar lines to the one at Southampton. It is proposed to build the dock of reinforced concrete with granite facings, and to employ electric plant for pumping purposes. Work is to be started at once, in order that the dock may be completed before 1915.

The first pile of the foundations for the new church of All Saints, Biowick, near Southport, was driven by the Bishop of Liverpool last week. It is proposed to build as the first section of the church he gave to cost £7,000, exclusive of the outlay on the site. The architects are Messrs. Henry Jones and Sons. The building will be perpendicular in style and will ultimately consist of nave with shallow aisles under one roof, broad transepts and apsidal chancel, with tower and spire over the porch at the south-western angle of nave.

The general purposes committee of the Rochdale Corporation has under consideration the plans for the new post-office which it is proposed to build at the Esplanade corner of Newgate. Some time ago the committee considered draft plans, but they took objection to the design, and proposed to provide for a building which would be architecturally creditable to the centre of the town. Since then other plans, showing a more ornamental building and larger accommodation, have been prepared and an architect, Mr. J. W. Platt, has been appointed. The sub-committee, together with Mr. S. S. Platt, the borough engineer, and Mr. P. W. Hathaway, A.R.B.A., the borough architect, have been working on the plans. The two sets of plans have been considered by the committee, who are now satisfied with the design, and will submit a recommendation to the council. The subject of alterations will be taken up at one or two public meetings, having met with their approval.

Our Illustrations.

CARTOON OF "WINTER": ROYAL ACADEMY SILVER MEDAL PRIZE DESIGN FOR THE DECORATION OF A PUBLIC BUILDING.

Last week the general design of the scheme for which Miss M. L. Williams was awarded the Royal Academy Silver Medal was illustrated by one of our double page plates, and a brief description by the artist appeared in our letter-press pages. To-day, we have reproduced the cartoon representing the principal figure in the composition round which the chief interest centres as the personification of "Winter," the subject of the design. He is holding the Sword of Destruction.

R.I.B.A. PUGIN STUDENTSHIP DRAWINGS: EASTER SEPULCHRE, ALL SAINTS', HAWTON, NOTES.

This famous Easter sepulchre forms portion of a scheme on the north wall of the chancel, in which also is incorporated the founder's tomb, and a doorway now blocked formerly leading into a chapel. The south wall opposite completes the chancel treatment, with sedilia and piscina of the same date 1325-1350. The stone used is from the ancient quarries of Ancaster. In the niches at the foot are sculptured four sleeping centurions, accoutred in mail armour with spear and shield, the latter bearing curious devices. The back of the niches and spandrels over the ogee arches are finely wrought in low relief, as are also the spandrels in the upper portion of the sepulchre. Above this stage, and in the recess formed under the triple ogee arches, with central canopy, and flanked by small imitative flying buttresses, the Resurrection of our Lord, very beautiful, though much mutilated, is represented. Our Lord is seen holding a staff (probably a crozier), with right knee bent in an attitude of stepping from the grave, where yet His foot remains. On the right are seen the two Marys, holding alabaster—one apparently in the act of adoration—or perhaps this is a representation of that Mary to whom Jesus said: "Touch Me not, for I am not yet ascended to My Father." On either side of this group are two attendant angels. On the left is the niche for the Host. In the frieze below the cornice is sculptured the Ascension. Our Lord's body is seen disappearing in the clouds, with angels on either side swinging censers as He ascends. Below are the eleven Apostles, and the figure of a woman (presumably the Virgin Mary) gazing heavenward. The whole of the carving is exquisite, particularly graceful being the rendering of the garments. It seems apparent that a different hand was employed in doing the frieze to that part directly beneath, the crocket work in the former being of a very different character to the latter, and where the joint occurs in the middle of a crocket the break in character (though purposely omitted in the drawing) is very noticeable. Nearly all the faces have been mutilated, though some yet remain fairly suggestive. The head of one centurion has entirely gone, as has also that to the figure of our Lord. The stone in the lower portion seems to have suffered from damp to a considerable extent, the rest of the structure being in excellent repair.

H. HERBERT FRASER.

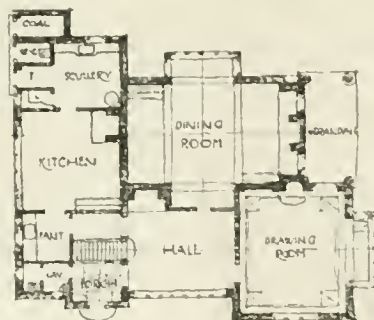
ST AUGUSTINE'S CHURCH, HIGGATE.

The late John D. Sedding began this church, and erected what is now standing, some years ago. This drawing showing a scheme for finishing the west front, by Mr. J. Harold Gibbons, architect, was chosen in a limited competition, and more or less approved, but in execution some modifications will probably be made, to realise the architect's intentions on the lines thus somewhat sketchily rendered by this Royal Academy perspective.

HOUSE AT GERRARD'S CROSS.

This house has lately been completed, and the gardens are to be laid out at a later date.

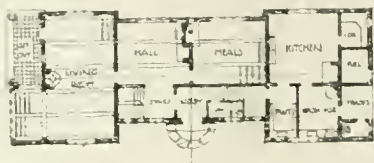
The details are simple in treatment, to convey the character of an old British farmhouse. The walls are stuccoed with a trowelled face, having good broad half-timbering at intervals. Messrs. C. E.



Gibbins and Co. were the builders. The architects are Messrs. Castle and Warren, Amberley House, Norfolk-street, W.C.

HOUSE AT BVFLEET.

This house has been erected by Mr. M. Hearne, builder, of Woking, Surrey. The plan is quite simple, with a good roomy hall, which could be used as a living-room with every comfort. The walls are covered externally with white smoothcast, and the



roofs covered with hand-made tiles, with due regard to the exigencies of cost. The house is simple and broad in general treatment, no ornamentation of any kind appearing without a practical reason. The architects are Messrs. Castle and Warren, Amberley House, Norfolk-street, W.C.

The extension of the Horniman Museum, in Lordship-lane, Forest Hill, comprising a lecture-hall and a new library, the gift of Mr. Enslie J. Horniman, and now the donor of the museum, will be opened to the public on Saturday, the 27th inst. at 3 p.m., by Sir Archibald Geikie, President of the Royal Society.

Mr. W. H. Longdin, surveyor, and Mr. A. J. Elson, assistant surveyor, have been granted honoraria of £60 and £20 respectively by the Penge Urban District Council for the work entailed in supervising the erection of buildings in the grounds of the Crystal Palace during the year and works connected with the Festival of Empire.

The contract for the erection at Ashford, East Kent, of the 43 workmen's cottages which the South Eastern and Chatham Railway Company have decided to build to accommodate the men coming from Battersea, has been taken by Mr. C. I. Epps. The site is at New Town, at the south-east end of the existing houses, and the new dwellings will face South Willesborough.

The Manchester Waterworks Committee report that satisfactory progress has been made in the work of laying the third conduit from Thirlmere to the city. The northern and middle sections, for which separate contracts were let to Messrs. Morrison and Mason and Mr. John Moffatt, respectively, are now almost completed, and in the southern section, upon which Messrs. E. Nuttall and Co. are engaged, the work is being rapidly advanced. The additional pipe will be ready for use in about two years' time.

The Carnegie Dunfermline Trustees have reopened communication with H.M. Board of Works in regard to the restoration of an underground archway in the Prater's Hall in the ruins of Dunfermline Palace. Some time ago excavations were made within the abbey churchyard, and the archway was in a very dilapidated condition. The soil was accordingly filled in; but several of the trustees are desirous of making further restoration and preservation of the fabric. If the Board of Trade give their sanction to the scheme, a passage will be made from an inlet at the base of the Pend Tower to an outlet further south at a Norman doorway which is at present built up with masonry.

PROFESSIONAL AND TRADE SOCIETIES.

INSTITUTE OF SANITARY ENGINEERS.—At the meeting of this institution on Monday evening, an interesting paper on "The Planning and Development of a Village Suburb" was read by Mr. Michael Bunney, A.R.I.B.A. He traced the origin of the housing and town-planning movement back to Mr. Norman Shaw's work at Bedford Park, and to the late Mr. Rogers-Field's sanitary schemes, showing that but little attention was paid to these by the public until the publication of Mr. Ebenezer Howard's "Garden Cities of To-morrow," in 1904, and the creation of pioneer garden cities at Letchworth, Port Sunlight, and Bournville three distinct types of propagandist work. Mr. Bunney showed the essential differences that exist between garden cities and garden suburbs, and proceeded to explain in detail the actual steps and subsequent development of a garden city and the steps to be taken in laying out the roads and open spaces. In conclusion, he dealt with the financial side of the question. The chair was occupied by Alderman William Thompson, of Richmond, Surrey, the chairman of the National Housing and Town Planning Council.

LIVERPOOL ARCHITECTURAL SOCIETY.—Mr. Edwin T. Hall, F.R.I.B.A., of London, read a paper on "Museums and Art Galleries" before the Liverpool Architectural Society on Monday evening, Mr. Arnold Thorneley presiding. Mr. Hall dealt on a comprehensive scale with his subject, and the informativeness of his lecture was enhanced by the pictures which were exhibited. He had a good deal that was interesting to say on the lighting of picture-galleries and museums, and the opinions of the directors of many of the principal institutions in English, American, and Continental cities were quoted as to the principles on which such buildings should be designed and the methods of lighting which produced the best effects. He gave an instructive account of experiments made on celebrated pictures and sculptures. The numerous slides shown included the plans and elevations of many of the most famous museums in Europe and America. A vote of thanks was passed, on the motion of Mr. Edmund Kirby, seconded by Mr. W. E. Willink, and supported by Mr. T. E. Eccles.

SOCIETY OF ARCHITECTS (STUDENTS' SECTION).—The first social gathering of the winter session, organised by the Students' Committee, will take the form of a smoking concert, to be held at 28, Bedford-square, on Thursday in next week, the 18th inst., at 8 p.m. Mr. H. V. Milnes Emerson, A.R.I.B.A., Chairman of the Students' Section, will be in the chair, and among the artistes who have promised assistance are Miss Hilda Campbell, Miss Dorothy Eales, and Mr. Harry Jackson. Students may introduce friends, and should intimate the number of their party to the honorary secretary of the Students' Section, 28, Bedford-square, W.C., in good time, as the accommodation is limited. The students' committee will welcome the presence of any member of the Society who may like to attend.

The Wood Green Urban District Council having appointed a special town-hall sub-committee, plans have now been approved for executing additions to the town hall and providing the additional office accommodation required and also two new courts for the holding of the local petty sessions and county courts. The estimated cost of the work is £6,000.

The death occurred on Tuesday of Mr. George Ellis, builder and contractor, one of the most prominent inhabitants of the Potteries district. The deceased was in a large way of business, and erected a number of public buildings, factories, and business premises of a superior type. Previous to the federation of the six towns, Mr. Ellis took a leading part in the public life of Hanley. He was an alderman of the old corporation of Hanley, and was mayor of his native town in 1898, 1899, and 1900.

THE CONVENTION OF AMERICAN ARCHITECTS.

Continuing our notice of the very successful annual convention of the American Institute of Architects, held in December at Washington, D.C., we observe that it was decided to appoint a special committee on publicity. This committee, which will work in conjunction with the secretary's office, will receive monthly reports from the various Chapters, and will endeavour to supply reliable information as to the work of the Institute. Not only is reliable information to be supplied to the public Press, but misleading statements published as to the practice of architecture will be corrected in the columns in which they originated.

An interesting discussion took place on the education of the draughtsman, introduced by Mr. Cram. The consensus of opinion as brought out in the discussion was a general approval of the plans outlined in the report of the Committee on Education, although there was on the part of certain speakers a tendency to regard with disapproval some features of the method employed by the Beaux-Arts Society.

Mr. George Oakley Totten, Jun., gave an illustrated talk, describing the recent International Congress of Architects held in Rome.

Mr. Donn Barber presented an interesting paper, on

THE INFLUENCE AND ETHICS OF COMPETITIONS.

It would be improper and unfair, he held, to condemn competitions as a whole and indiscriminately, for from some points of view they seem to be a necessary evil. It is the continual abuse and mismanagement of competitions, the unbusinesslike, undignified, inadvised desperate sort of struggles that ever carry in their train disappointment, prejudice, criticism, and hard feelings of many and varied kinds. All this is responsible for a condition that has become a most serious consideration in contemplation of the inter-relation of architects and bearing upon the actual work that we, as a profession, are doing and standing for. The architectural profession has for years been kept in a state of commotion, while the real solution of the difficulty seems as yet unfound. The problem must be dealt with directly and calmly, and in a manner devoid of all prejudice, and some true solution must be found at any cost. It seems to have become a very generally-accepted and recognised tradition in certain cases, notably where proposed structures of a public or semi-public nature are involved, that architectural competitions still prove to be desirable or necessary as furnishing, perhaps, the best available means for selecting an architect. Just at the present time in this country, however, architectural competitions seem to be declining in popularity. Where only a comparatively few years ago competitions were sufficiently numerous to provide almost continuous employment for some firms who were fortunate enough to acquire the major part of their work in that manner, to-day we find an immense quantity of important work being given out by direct selection and appointment, and competitions comparatively infrequent. It would be difficult to assign any real reason for the change which seems just now to be taking place. Can it be that the owner is gradually coming to see that competitions are at best very slow, and, if properly conducted, a most expensive method of choosing an architect? Is it possible that the owner realises that an occasional good preliminary scheme is, after all, the real limit of the competition method, and that being the case, competitions are in the main of no advantage to him? Does the owner begin to appreciate the extreme difficulty of devising a scheme of competition that will afford him conclusive assurance and evidence of the winner's ability to secure for him the final and practical execution of the design selected, without committing him to unnecessary, if not inordinate, expense? Notable instances exist where architects who have proven adepts in the preparation of com-

petitive designs, men of extraordinarily-developed imagination, and possessing marvellous dexterity in draughtsmanship, have been awarded the prize, and, later, the work, as a result of competition, and have during the prosecution of the work shown themselves to be devoid of practical experience, and even lacking in the ability to discriminate in the selection of competent assistants or superintendents. The ultimate results in such cases have probably had the very natural effect of somewhat impairing confidence in the competition method of selecting an architect. On the other hand, there also exist many instances where notably satisfactory results have been obtained through the method of competition, but have these not ordinarily followed as a result of choosing the competitors from the ranks of competent and thoroughly experienced practitioners, and paying the competitors so selected an adequate or reasonable sum for their sketches. It must of necessity be prejudicial to the interests of the owner that any architect should be allowed to enter a competition who cannot in advance establish his ability and competence to properly design and satisfactorily execute the work involved. It is sometimes urged that to open an unlimited competition may disclose some unknown but brilliant designer. This reasoning might be valid if the sole object of a competition were to secure a brilliant set of sketches. But, unfortunately, sketches in themselves give no real evidence that their author has the technical knowledge or matured ability to fulfil the promise of his sketches through proper and adequate control of the work itself in execution. The general influence of competitions can, for present purposes, be broadly divided as regards the influence on the architect. Theory presupposes competitions to be instituted with the sole purpose of advancing the interests of the owner, and practice proves that these interests are best served where a fair, clean cut and equitable agreement has been entered into between the owner and the architect before the competition takes place. The American Institute of Architects, after years of untiring study and labour, has finally issued a circular of advice relative to the conduct of architectural competitions, as a statement of the principles which it believes should underlie such agreements. Serious difficulty with the system prescribed, however, has been found in some cases where it has proved inexpedient, not to say impossible, to carry on important competitions along the lines of what is conceded and believed to be the best practice, owing to the general and natural desire on the part of the owner to get free advice in the form of the greatest possible number of competition sketches, and also on account of the surprising willingness on the part of the architect to rush into competitions where no pre-arranged agreement or understanding exists with the owner. The owner often regards what he believes to be the information contained and given in his particular competition, in the light of a consensus of expert opinion on the subject of the problem before him, and therefore is pleased or disappointed, as the case may be, with what he regards to be the possibilities of his project. On account of the quality and character of the information so given, the real satisfactory solution of the problem is often complicated, and confusion, rather than lucidity, results. The short-sighted, unbusinesslike practice of the seeking out of a client, and the offering to him of preliminary services on approval, and gratuitously, whether in competition or in the hope of finally being awarded the work, has in the past lowered the dignity of the profession as a whole, and resulted in the cheapening of the architects' services in the mind of the building public. The average owner seems to attach no particular value to architects' sketches, either as meaning or standing for more than he himself can see in them, or as representing anything like the cost and labour involved in their production. Architects are not paid enough for the work they actually do to be able to afford to waste their earnings on the whims and fancies of

an owner who is willing to take without compensation from them, in one form or another, professional advice which may be the result of years of technical preparation and experience. An architect should have a better standing in the community; he should be more prominent before the public and its public enterprises, in the courts and in all matters of good and helpful citizenship. To just how much of the lack of all this can we trace the influence and practice of unlimited and irregular competitions obtaining through-out the past is a question well worth considering. The influence of competitions on the architect, aside from the undoubtedly educational advantage which they have furnished at unjustifiable and exorbitant expense to the profession, has been to create unreasonable jealousy and unfair prejudice, misunderstandings, disappointments, and, in many cases, undeserved criticism. In competitions the resulting joy, if there is any, is of necessity confined to the winner; while the burden of disappointment is left to be shared by all the others who have competed through labour and expense. It has been proven over and over again, as an economical argument in the case of competitions for smaller buildings, that the unsuccessful competitors have often expended collectively in the cost of preparing competitive designs, a sum equal to, if not exceeding, the gross fee that the successful architect has finally received for his complete services rendered in connection with the execution of the work involved. This cannot be justified either as a good public policy, or a sound professional policy. The query is, How long can the profession be expected to afford to continue the practice? The ethics of competitions would seem to be inseparable from the ethics obtaining in general practice of architecture. The application of decent methods in practice rests entirely with the individual practising architect, who must look unselfishly at the part he must play as a unit force in the great work of the present, in order that his architectural progeny may occupy that undisputed place in the affairs of the world that should rightly be given to those who represent the greatest of all constructive professions. The American architect of the future must of necessity become less of a creative artist, and more of a trained manager of building enterprise. The ever-increasing pressure for speedy and adequate execution will preclude more and more exhaustive study and tentative experimentation. It will become the duty of the architect to surround himself by specialists in design, in construction, in superintendence, in technical research and engineering; men representing every department of architectural practice, and possessing a knowledge in their individual capacity, perhaps, far beyond his own. The architect himself must remain, however, the master mind that organises and directs those who strive for the common cause of the work involved, and for the office. He will deserve to exercise a greater moral influence in public affairs than heretofore, for the scope of his organised efforts will be nation wide, and his authority will be that of a broadly trained executive of varied experience, which, coupled with a high sense of duty, should make him a generous and true friend of public spirit and the eternal fitness of things.

On the closing evening of the Convention, Mr. George B. Post, who for more than fifty years has been a member of the Institute, was presented with the Gold Medal of Honour, which is only bestowed once in three years. The presentation took place in the auditorium of the New National Museum, President Taft being one of the numerous visitors present at the reception.

H.M. Office of Works are projecting further extensive structural alterations at Carnarvon Castle on so large a scale that they will take some years to complete.

A new post-office is being built at Roscommon by the Commissioners of Public Works, Ireland, at a cost of over £3,000. The superstructure is carried out in local stone with red brick facings and limestone dressings. The builders are Messrs. Alexander Hall and Co. of Ringsend.

Correspondence.

A bacon factory of considerable dimensions and with a capacity of 500 pigs per week, will be constructed at Bulawayo, Rhodesia, during the present year, by the British South Africa Company. Specifications and plans are being prepared by Mr. Loudon M. Douglas, F.R.S.E., technical adviser to the British South Africa Company, 2, London Wall-buildings, London, E.C., from whom all further particulars may be obtained.

To the Editor of the BUILDING NEWS.

The New Transport Co., Ltd., Bath
House, Holborn Viaduct.

Intercommunication

GUINEAS FOR BEST REPLIES.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Frank Wilson, 225, Nottingham-street, Sheffield.

QUESTIONS.

[13072.]—GARAGE FLOOR.—I want to put in a suitable floor for a motor garage in an old building measuring internally 32ft. by 17ft., leaving a ceiling of about 4ft. in depth between. I propose as follows:—An 8in. by 6in. iron girder down the centre, with suitable bearing in the walls at each end, and taken up by 4in. square pillars, equally spaced in the middle. Resting on top of this, at 2ft. intervals, 4in. by 4in. square beams, and bedded in the side walls, 4in. by 1½in. iron girders. The space between to be filled in with concrete 5in. deep, well rammed in with iron rods. The floor to be cast over all. The concrete floor to be sufficiently strong to carry motor cars weighing two tons each. I should be obliged

[13073].—CIRCULATING PIPES.—In a case where lin. gunbarrel galvanized pipes connect copper boiler to an "Eagle" range, constantly burnt through apparently caused by an abundance of iron and siliceous matter, including a big share of oxide of iron being discharged from the water supply, the head of pressure being about 10 ft. at cold supply system: Is there any simple device known (except an expensive filter) to intercept matter of the kind being discharged; or other remedy known to avoid this frequent trouble in the circulating pipes, which become practically closed with this matter in a short time?—X. B.

REPLIES.

The work was done in wet weather, and a maximum amount of water was consequently imprinted here and there on the roof surface. The water was not between the render and the concrete, but on the surface. The water would have been well had not a hot sun vaporized the water, with the result that the roof covering buckled and the tiles split. The sun also exposed the concrete to the sun's rays, concerned. To obviate this I imagine it is better to finish the ceiling of a concrete roof with a surface, such as, by way of example, a thin layer of plaster, so that surplus moisture to work out. Internally, the cement work also collects moisture during wet and windy weather, and this moisture is then gradually expelled even though it having been completed for many years, especially in ill-ventilated positions. I should say that the concrete is not waterproofed, but has merely been tried for a time, as the work being new. Moisture is essential for the proper setting and hardening of the cement. The water is not to be put in the parapet wall. When the work is completed, examine the roof for defects. Was a proper damp-proof course and flashing put in the parapet wall? Is the ceiling level to be

continuous, and I should imagine this will prove effectual, as the bulk of the water is caused by condensation—Gordon L. Thorne, 16, Atherley-road, Southampton.

[13069]—CONDENSATION ON CEILING.—This may be caused as suggested, although the cement, if thicker, would tend to keep the moisture in. I would suggest that it is the warm air of the building rising and coming in contact with the cold ceiling and condensing, with a little of the pump-action from the concrete. Remedy, efficient cross-ventilation near the ceiling.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[13070]—MASONIC HALL.—Plans herewith may be useful to inquirer. Elevations would also have been included but for the fact that these plans already made a great call on the Masonic hall; but probably any further information required will be obtained by consulting the following illustrations, which have appeared in the BUILDING NEWS on

LEGAL INTELLIGENCE.

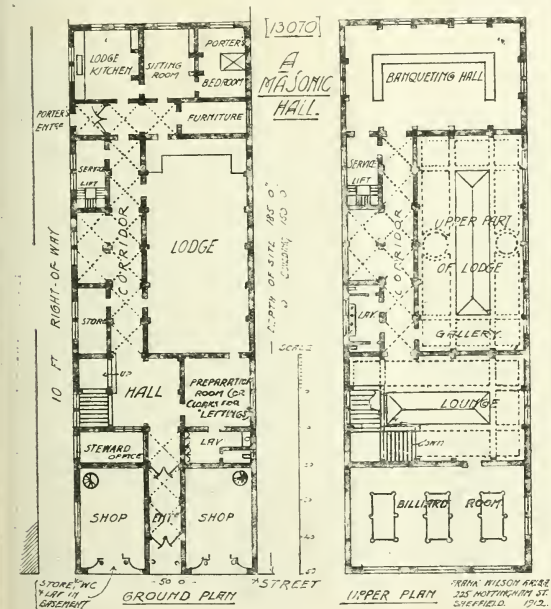
THE BUILDING TRADE TWELVE-MILE RADIUS.—At Croydon Police Court on Saturday, James Burgess and Son, builders, of Wycliffe-road, Wimbledon, were summoned by Charles Stribbling, a member of the Operative Bricklayers' Society, for 6s. 4d. alleged to be due as balance of wages, reckoned at halfpenny per hour for 148 hours. Complainant's case was that he took work at Bandon Hall Schools at 10d. per hour on the strength of a statement by defendants' foreman that it was just outside the twelve-mile radius—the one recognised by the London Master Builders' Association and the Bricklayers' Society, under agreement, as the boundary of the area within which bricklayers should be paid 10d. per hour. On finding out, about a week later, that the school site was within the area, complainant reported the

Our Office Table.

All who know the squalid surroundings of Southwark Cathedral, and its cramped position, especially on the north and west, will be pleased to learn that a committee is being formed to consider, and, if possible, carry out, the timely suggestion of Mr. Henderson-Livesey, C.E., that the warehouses and other buildings blocking the view of Southwark Cathedral from the river should be swept away to make room for an embankment and public garden. Mr. Henderson-Livesey's letter, in which the suggestion was originally made, has been warmly endorsed by the Bishop of Southwark, and also by Archdeacon Taylor. The Bishop will act as chairman of the committee, which will at once get to work, and has already received some promises of monetary aid. The scheme is a bold one. The land and buildings lying north of the Cathedral, and fronting on the river, are assessed at £9,428 per annum. Including the bank and hotel and offices fronting on the approach to London Bridge, the total is £13,905, or, in round figures, £14,000. At thirty years' purchase, with 10 per cent. added for compulsory expropriation, the price would come to about £462,000, or £311,124 without the buildings on the bridge approach. Another large sum would have to be added as compensation to the dispossessed traders. The actual cost of clearing the site and building the embankment would be small by comparison.

Burford Priory, which dates from the 13th century, and had been restored as a residence within recent years by Colonel B. Sales La Terriere, has been sold to Mr. E. J. Horniman, "The Empty Saddle," by F. E. Waller, has, as its background, the courtyard. The picture shows Lord Falkland's horse returning to his home—Lord Falkland was then the owner of the estate—after the defeat of King Charles at the Battle of Newbury. The Priory existed from 1291 as an offshoot of the Abbey of Kewton, and Edmund Harman, baronet to Henry VIII., converted it into a lay residence, and it eventually passed into the hands of Sir Lawrence Tanfield, who was admitted to the Inner Temple in 1597. He entertained James I., who made his host Chief Baron of the Exchequer in 1607. A later owner was William Lenthall, Speaker of the Long Parliament. On the death of Speaker Lenthall, the property passed to his son, Sir John. The most interesting parts of the interior include Lenthall's chimney-piece in the drawing-room, the ceiling dating from the time of Henry VIII., which has been well restored, the staircase, the Gothic arched of the hall, the great fireplace, and the ceiling of the inner hall. The old chapel, which has not been touched, is connected with the house by a cloister, and an upper gallery opening from the drawing-room. We illustrated the Priory by a pen sketch of Maurice B. Adams in our issue of September 25, 1885, and chimney-piece in the ballroom on the first floor from a drawing by William Eaton, A.R.I.B.A., in our issue of Nov. 30, 1906.

An unexpected indirect result of the building of the County Secondary Schools in the Priory, Shrewsbury, has been the recovery of a valuable landmark in the form of the base of the "Round House," the site of which antiquaries had for a long time tried to locate in vain. The Priory has been made during the lowering of the Priory Gardens to permit of the making of a new approach to the Quarry. Unluckily, half of the base is covered by the schools playground; but the exposed half is to be preserved at the expense of the Shropshire Horticultural Society. The "Round House" was one of two circular towers erected by a long stone wall, which were situated as a defence to the lord on the Severn below the Welsh Bridge, left unprotected by the great wall of Henry III. The wall and one of the towers disappeared long ago; but the "Round House" remained until almost the end of the 18th century, when it was



the following dates—Jan. 11, 1895 (plans, etc.); September 29, 1899; March 2, 1900 (perspective); July 20, 1900 (plans, etc.); July 25, 1901 (excellent perspective); Jan. 24, 1902 (plans, etc.); June 16, 1905 (plans, etc.); April 7, 1911. A point to bear in mind in planning this hall is the probability of its being let for other social purposes than Freemasonry, on the off-nights—Frank Wilson, 225, Nottingham-street, Sheffield.

At a meeting of the special town-planning committee of the Portsmouth Corporation on Tuesday the borough engineer was instructed to prepare a preliminary "town plan." The scheme at this stage will not, however, go beyond the outlining of roads and the marking out of sites for public buildings. The preliminary plan will be submitted to a conference of owners.

Mr. J. Stewart-Clarke, of Dundas Castle, and his sisters have made a gift of £20,000 for the restoration of the ruined choir of Paisley Abbey as a memorial to their father and mother. This gift will greatly facilitate the completion of the restoration scheme inaugurated 12 years ago, and partly carried out in 1901-2 under the direction of Sir Rowand Anderson, of Edinburgh. At that time £20,000 was expended in repairing the nave and rebuilding the transepts and the base of the central tower. We published the series of R.I.B.A. silver medal measured drawings of the abbey by Mr. T. Roger Kittell in our issues of March 9, April 13, and June 22, 1888.

matter to his Union. The attention of the Master Builders' Association was called to the matter, and complainant, continuing working, but rather than concede the halfpenny the defendants resigned from the Association. There were about a dozen other bricklayers on the work, including a Union man, and they were content with 10d. Henry Winks, the foreman, said that the district rate was 10d. per hour, which complainant accepted, nothing being mentioned about the radius. The Bench were divided in opinion, and by a majority the summons was dismissed.

Mr. Francis Winton Newman and Mr. Walter Tapper, two Associates of the Royal Institute of British Architects, were elected Fellows by acclamation on Monday last, and Mr. Victor Alexandre Frédéric Laloux, architect of Paris, was elected, in the same manner, as Hon. Corresponding Member.

At a meeting of the Buckie Town Council on Monday, the appointment of an engineer to report on the whole water system and sources of the town, with a view to the augmentation of the supply, was made. The final vote lay between Mr. John Chisholm, C.E., Airdrie Water Trust, Airdrie, formerly of Inverness, and Mr. G. Jenkins, C.E., Aberdeen. Mr. Chisholm was appointed by eight votes to three for Mr. Jenkins. The remuneration is to be two guineas per day and expenses.

A building which is unique in design is in course of erection above the four tracks of the New York Central Railroad at Tremont and Park avenues, New York City. The entire building will be carried by steel columns located on the sidewalks, and as there is only 2ft. between the first floor and

The ever-increasing activity in the Canadian building field is reflected in the returns for clay building materials. In 1920 the total production was 695,610,331 bricks, valued at 5,912,648.40d., made up of 628,545,431 soft bricks, valued at 5,430,450.40d., or an average value per thousand of 8.73d., and 67,064,904 pressed bricks, valued at 807,298.00d., or an average value per thousand of 11.89d. There were 397 active firms reporting, as compared with 386 in 1919, and the value of production shows an increase of 1,240,000.00d. over the preceding year. The export of Canadian building brick has been large, averaging for a number of years past about 6,000,000d. in value per annum, but falling in 1909 and 1910 to 2,255,000d. and 2,762,000d. respectively. During the past seven years the value of the imports has varied from 100,000,000d. to over 200,000,000d. per annum, the largest share coming from the United States, and nearly all the remainder from Great Britain. Ontario furnishes 47 per cent. of the Canadian output of the material.

MEETINGS FOR THE ENSUING WEEK

FRIDAY.—Glasgow Architectural Craftman's Society.
"Rothenburg on the Tauber," by
James McKiesack. 8 p.m.
Institution of Civil Engineers. "The
Turbo-Blower and Turbo-Compressor,"
by George Ingram. 8 p.m.

A parish-hall has just been erected at Fifehead Neville, Dorset from designs by Mr. J. Allner, A.R.I.B.A., of Blandford. Mr. John Cowley, of Sturminster Newton, being the general contractor. The building, which is faced with Evercreech bricks inside and out, was formally dedicated on Thursday, January 4, by Dr. Ridgway, Bishop of Salisbury.

TO CORRESPONDENTS

Cheques and Post-office Orders to be made payable to
THE STRAND NEWSPAPER COMPANY, LIMITED, and
crossed London County and Westminster Bank.

NOTICE.

Handsome Cloth Cases for binding the BUILDING News, price 2s., post free 2s. 4d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel-street, Strand, W.C.

TERMS OF SUBSCRIPTION

* The special rate to Canada is £1 1s. 8d. = 5dols. 27c. for 12 months, and 10s. 10d. = 3dols. 61c. six months.

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The charge for **Auctions, Land Sales, and Miscellaneous and Trade Advertisements** (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Allyships and Partnerships

The charge for advertisements for "Situations Vacant" or "Situations Wanted" and "Partnerships," is ONE SHILLING for TWENTY-FOUR WORDS, and SIXPENCE for every eight words after. *All Situations Advertisements must be prepaid.*

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* * Replies to advertisements can be received at the Office, Edfingham House, 1, Arundel-street, Strand, W.C., free of charge. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

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E. H. S. and Bros.—I. C. S.—H. K. and Co.—A. W.—
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B. T. B.

REGESUS.—No.

T. L. J.—Please send

B. O'H. — Of no use to n.

STEEPLE.—The method is as old as the hills.

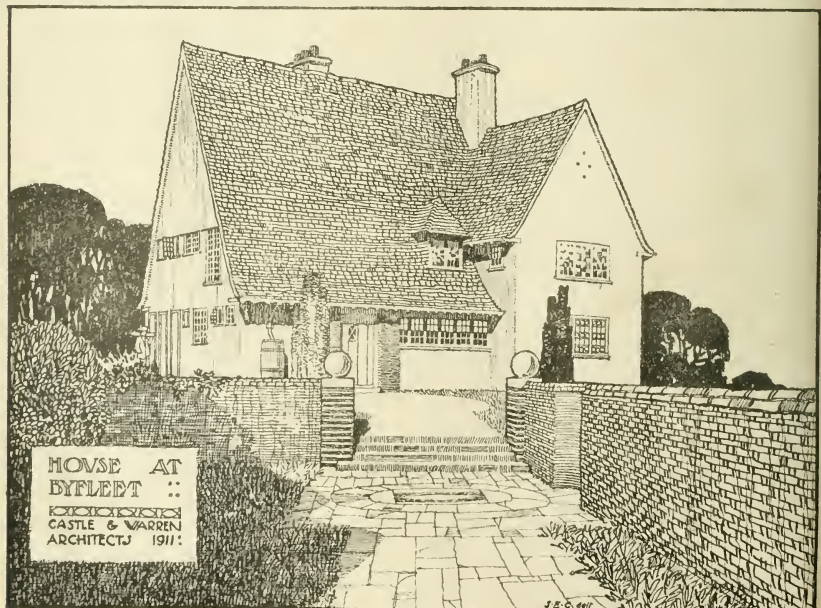
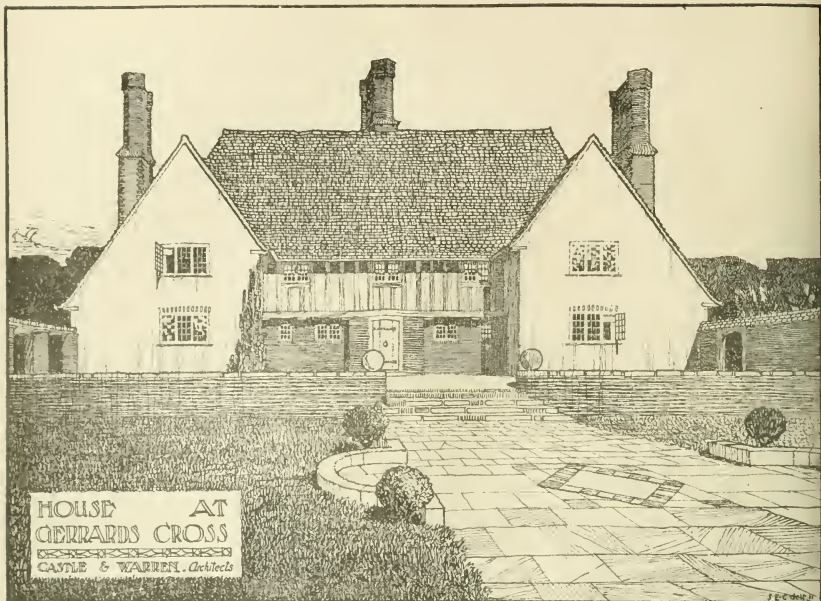
C. C.—We cannot ask readers to teach you your trade in "Intercommunication."

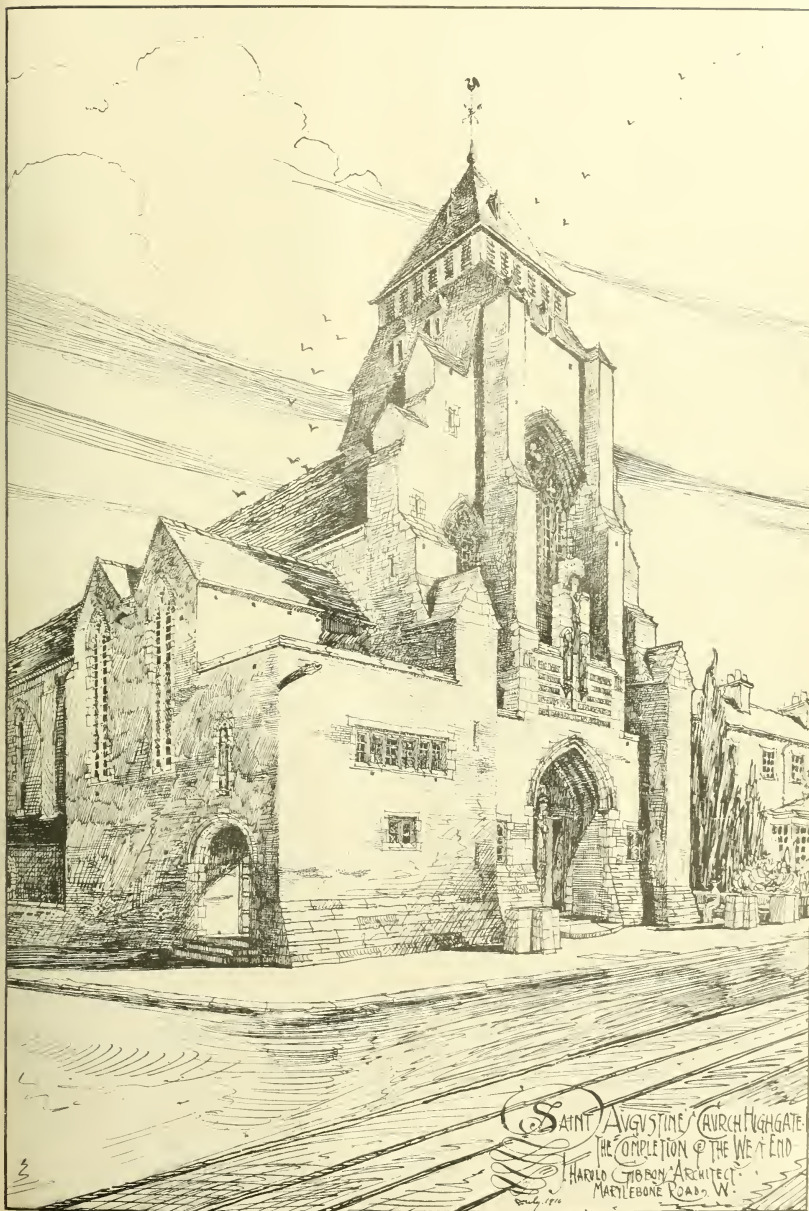
ALDORE EDUARD MORALES ALVARADO, M.D.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED. — "Liver," "Briton," "38," "Mac," "Tolp," "Nd Desperandum," "First Shot," "Whiskers," "Connery Yokel," "Scot," "Bournemouth Queen," "Verus," "Sirrah," "Ne'er Do Well," "Lux," "Benvenuto," "Sydner" (plans should not be coloured, and sheet of paper not according to rules), "Moroni," "Five Towns," "Why Not," "Norseman," "Norvic" (rather too late.)

Mr. Isaac Charles Johnson, of Mayfield, Gravesend, Kent, head of Messrs. I C Johnson and Co. (Limited), cement manufacturers, and at one time Mayor of Gateshead, who died on November 29, in his 101st year, has est £40,656





THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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OUR ILLUSTRATIONS.

- New Reredos and Re-erection of the Sanctuary Old Screen, Chichester Cathedral. Mr. Somers Clarke, F.S.A., Architect.
- National Silver and Bronze Medal Drawings from the Life. By Mr. Charles S. Dunstan and Mr. Julian Gould.
- St. Lawrence Jewry, Gresham-street, E.C. Details of the Vestry. By Mr. Frank Dowdeswell.
- Building News Designing Club. Designs of a Lecture Hall for a Garden Village.
- House in West-avenue, Exeter. Messrs. Ellis, Son, and Bowden, Architects.

"MY BROTHER THE ASS."

This is how St. Francis of Assisi used to speak of himself, perhaps when he was at his humblest and best; and it is how, most of us, once in a while, are inclined to think, of ourselves, if not always to speak. Sometimes our brother, by profession, may be an architect; and yet a shorter word, beginning with the same vowel, would have suited him and others of us so well that few of us can see after a little while how we all came to miss it. Never, perhaps, would the name fit any of us better than when we are most conscious of an asinine desire to kick, and, it may be, of an equally asinine wish not to be kicked in return. It is true that our own fathers and mothers "corrected us, and we gave them reverence," foreseeing the days when, on children of our own, we should be able to pay back long accumulations of what have now become almost a prehistoric debt. Perhaps the juniors of the coming race may give themselves lessons in manners. There is much left for them to learn, and possibly none too much time left to learn it in.

Many things remain to be invented—in spite of Dr. Swift's premature mention of a breed of sheep without wool. This, like other things of the same class, is left to be invented by the donkeys of the future. At present there is no money to be got out of such things; but what the next Parliament—or, rather, Mr. Lloyd George—may decree, who knows? The geniuses of Laputa, if they ever did chance on them, did not have the grace to hand them down to posterity, and the day must soon be here when it will be time for them to be discovered again. The ancient Israelite, who dwelt in a "far-off place, that he might hear the bleatings of the flocks," would have lived with his neighbours had there been no "money in it." It was never a Jewish custom to hear sheep bleat from mere love of the noise, as so many of us seem to do in England. We do not retire from the world simply to hear the bleating of the sheep, but rather to hear the bellowings and booings of the ignorant crowd that take their place, and that are inferior to sheep, because they have some power of judgment, and yet will not use it. How many other noises, neither beautiful nor useful, do we not all give ear to, with as little recompense!

About King Alfred's day a custom seems to have arisen, in forest places, of building churches with walls of oak-trees, split lengthwise, and set up with the split faces next the interior of the church, and the rounded parts externally. At Greensted,

near Ongar, in Essex, such a church still remains; it has lasted since Harold reigned, and can still be seen. Building of the Early Catholic type was in fashion then, when William I. was on the throne, and Harold lately buried outside Waltham Abbey. It was less than a lifetime to A.D. 1066, when the Greensted church was put up as a "temporary" one, to receive for a few days or weeks the body of St. Edmund the Martyr. Then, first "English Norman" appeared; the ordinary R.C. type of church was modified later, as years went on, by successive English changes. First, Second, and Third Pointed styles followed each other through 400 years, till in Henry VII.'s time they all began to seem rather out of date. Peter the Hermit and his men had long since appeared and vanished; there were "wars and fightings" most of the time; the Puritans sprang up, the mason's work grew better and better, and at last grew too good to be true; plastered brickwork came into use, and lath-and-plaster; and, finally the Revolution of 1688, the four Georges, Queen Victoria, and modern conditions. While all this, and a myriad times as much has been going on, the "temporary" church of Greensted has been standing there to show us what we could do in oak before the Norman builders showed us how to do it better in stone. Mr. Pepys, whose Journal is a sort of *Daily Mail* for ten years or more of the 17th century, has told us, (though he could not foresee our ever being able to understand him) all about the departure, in flames, as it were, of Oliver Cromwell and his hosts, and the burning and rebuilding of the City. It was characteristically English; a great opportunity thrown away by neglect; yet a few great things readily accomplished and nearly smothered out of sight by a mass of tasteless vulgarity. It has mostly been done over again, twice or thrice, and we or our fathers have paid its cost—and we or our children will have to pay for it again. The wonder is that England has lasted till now, in spite of "its sons, the asses." Perhaps "its sons, the angels," saved it, of whom, in our department, Christopher Wren was one of the chief.

Hans Andersen, in one of his stories, tells of a voice which said to the world, "Let everything go back to its original owner"—and everything went back. The barking dog no longer imitated his master's voice, the crowing cock forgot the wild Malayan one, the horse, and even the donkey, ceased to try and speak like men, and even the bull forgot to roar in quasi-human tones. Why should any sounds belong to any but their original possessors? The boor is less to blame for his boorish-

ness, since he may have acquired much of it by accident from the people who pursued him, and who (if the writers of hunting tales are to be trusted) are not always much better-mannered than their intended prey, or he would be entitled to take back his original boorishness, and to give them their own in place of it. Which of them would then be the ruder animal it is not for us to say, and it is long since a really wild boar roamed the English woodlands. Adam, if we may for a moment think of him as a reality, and not a myth, when he first heard his children crying as Nature meant them to do, perhaps could detect no trace of the vox humana amongst them. But Adam is gone, if he ever was here; and whatever theologians may infer, hardly anyone else has even cared to say that Adam was an ass.

TOWN PLANNING FOR TWENTY-FIVE CENTURIES.

It will be very easily understood that considerable difficulties lie in the way of obtaining many instances of town planning until we come to fairly modern times, the manifest reason being that in almost all cases the plan of a town was rarely set down before building; towns having in almost all cases gradually developed from the settlement of one or more cottages, till by the addition of further habitations a hamlet became a large town. We have, however, certain details of the planning of three towns. One of these is known to have existed from an unknown period more than six hundred years before the Christian era. The planning of the second town dates from the Middle Ages, and the planning of the third belongs to comparatively recent times. A consideration of the details of the plans of these three towns will probably show us that whenever a town has been planned in any age it takes a particular and an invariable form.

The plan of the most ancient of the three towns with which we shall attempt to deal may be seen in the map of Pompeii, published by Richter and Co. in 1851. In this map we see that the plan of the city exhibits the main streets set parallel to each other, and crossing each other at right angles. Mr. Mau, in his history of Pompeii, shows us very clearly that the town was in existence before the sixth century B.C.

We may now turn to the planning of an English Medieval town, that of Winchester in Sussex. Very rarely in the Middle Ages was it possible or needful to plan out a new town. In the thirteenth century, however, it became necessary to provide a new town in a new district for an

existing population. This necessity was occasioned by the destruction of the town of Winchelsea by the encroachments of the sea. To-day we must therefore realize that there are two Winchelsea's, one a town submerged a mile out to sea, and the other the new town planned out as a whole at one time by one mind or by several in collaboration. New Winchelsea, if we may speak of the present ancient town, was planned and built in or near the year 1287. At the time of the purchase of the ground by authority, the district on which the town was to be built was known as Iham. The inhabitants, however, when taking possession of their new homes, changed this name to that of their old town, and called it "Winchelsea." (We take the spelling from one of the documents in Jenke's charters of the Cinque Ports.) What advantage was taken of this almost unique opportunity to plan out a whole town, and what was the special feature of the planning in the minds of those by whom the work was done? We shall see that the opportunity afforded caused a remarkable departure from the ordinary arrangement of an English town, and that the outcome of ideas resulted in the adoption of a plan with one especial and predominating feature. The new town of Winchelsea is said to have been planned after the pattern of the old town. Such may have been the case, but it is extremely improbable. All English towns with rare exceptions have grown bit by bit from hamlets, and the result is exactly what would be looked for—namely, a series of streets running in many directions, and in lines both straight and curved. The Ordnance map of Winchelsea, published in 1878, shows very clearly the thirteenth-century plan of the new town. In it we see the streets running parallel to each other, and crossing each other at right angles, on virtually the same system as laid down at Pompeii many centuries before.

The newly-built town of Winchelsea was planned in about forty squares, called "quarters." In Cooper's "History of Winchelsea," we find some interesting references to these quarters taken from a document of the time of Edward I. We read of a first street or highway in which were the first, second, third, fourth, and fifth quarters; a second street or highway contained the sixth to the eleventh quarters, and so on to the eighth street or highway in which were contained the thirty-sixth to the thirty-ninth quarters. The Ordnance map of Winchelsea does not show now any such appellations, the streets bearing only ordinary names, such as Rich-street and Castle-street.

We may now turn to the planning of the last of our three towns, the modern city of New York. In the map of the city published in 1903, by Rand, Macnally, and Co. in their Business Atlas, we see again the same particular features as were apparent in the plans of the towns of Pompeii and Winchelsea. Again we see the streets running parallel to each other, and crossing each other at right angles.

To sum up: Pompeii, we have seen, was in existence 600 years B.C. Winchelsea was planned in the Middle Ages, and the plan of New York must have been set down in these fairly modern times. Yet we see all these towns laid out on virtually the same plan, namely, one in which the streets are all straight, and where they run parallel to each other and across each other at right angles.

The Wimbledon Town Council have approved a plan for the extension of the public baths at a cost of £2,830. The scheme will provide 26 slipper baths for ladies, with the necessary washing-room and lavatory accommodation, two "solarium" bathrooms, with separate lavatory accommodation, and a store for 120 cycles.



Fig. 1.

REINFORCED-CONCRETE BUILDINGS.

By Wm. G. SHIPWRIGHT, Lic.R.I.B.A., M.C.I., and Chartered Building Surveyor (by Exam.)

ORCHESTRELLER'S FACTORY, STORES, AND OFFICES AT HAYES.

(Walter Cave, F.R.I.B.A., Architect.)

This scheme, which includes two large blocks of factory and office buildings, a drying or seasoning room for timber, and a large engine-house, is selected for illustration partly on account of its extensive and comprehensive character as a warehouse, factory, and office block, but more

as a facing. The whole of the structural work is executed in reinforced concrete, the weight of floors, roof, and construction generally being supported on reinforced-concrete columns. Figs. 1 and 2, together with the plans, Figs. 3 and 4, will convey some impression of the magnitude of the two principal blocks, commenced respectively, under separate contracts, in 1900 and 1910, and recently completed, and also indicates the general scheme of design and construction.

The arrangement of the beams and columns on all the floors in the building erected under the first contract is shown in the diagram, ground-floor plan, Fig. 3.



Fig. 2.

particularly by reason of the inclusion of some especial features in the scheme necessitating the provision of ingenious and instructive items in reinforced-concrete design and construction.

The larger block shown in elevation in Fig. 1, is devoted to the extensive piano-forte manufacturing works of the company, whilst the smaller block, shown in Fig. 2, provides accommodation for works in connection with the roll-music preparation.

The keynote adopted in designing the whole scheme is the erection of reinforced-concrete skeleton structures with an outer casing of brickwork merely employed as

from which it will be seen that the skeleton frame of reinforced-concrete beams and columns has been constructed between the brick piers on the external wall, with a double row of columns traversing the centre of the building longitudinally whilst the side columns are recessed into the brick piers. The interior view, shown in Figs. 5 and 6, are taken on opposite sides of the room on the first floor. The main beams on the ground and first floors, which have a span of about 29ft., have been constructed to the detail shown in Fig. 7 and the enlarged cross-section, Fig. 8. The



Fig. 5.

beams, which are 21in. deep and 8in. wide, are provided with four heavy rods as tensional reinforcement, the upper pair of rods having locking stirrups or hangers at

heavily reinforced, to sustain a slightly increased loading. This detail also shows the dual tensional reinforcement and shear hangers employed in the 12in. by 6in.

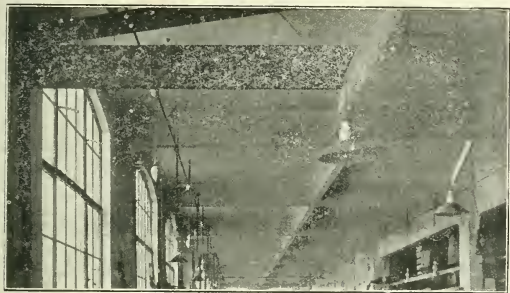
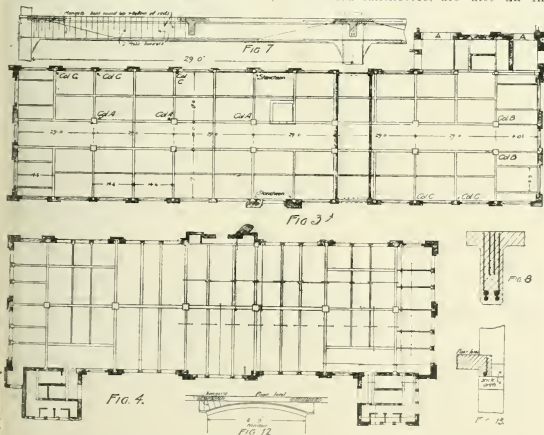


Fig. 6.

6in. intervals, and being turned diagonally into the upper part of the beam at a distance of 8ft. from the supports, to secure, in conjunction with the stirrups, an effective shear resistance in the beam.

cross-beams, running between the main beams and the external walls, which have an average span of about 18ft.

The archer lintels, which are constructed as balanced cantilevers, are also an in-



A similar type of beam, illustrated in Fig. 9, has been used in the upper floors. In this case, however, the beam is 22in. deep and 8in. wide, and somewhat more

interesting detail—shown in Figs. 10, 11, and 12—with an enlarged cross-section in Fig. 13. The position and reinforcement of the intersecting cross-beams, and the

arrangements made at the junction of the rods, is also shown in these details. The reinforcement of both cantilever arms is formed by a single rod, bent round at the extreme ends, and passed above the reinforcing rods of the intersecting beam. The shape of the arched heads to the openings lends itself particularly well to this method of construction, giving the greatest depth at the springing, where the bending stress on the cantilever attains its maximum, and the stirrup connection between the two parts of the rod secures a good shear resistance and thoroughly homogeneous piece of work.

It also appears that this method, which provides a distinct break in the reinforcement at the narrow part of each lintel, will to a considerable extent obviate the cracking which often occurs in cases where continuous rods of considerable length are used—an effect probably due to slight shrinkage, which usually occurs in the concrete during the process of setting.

Fig. 14 shows a section of the lintel employed to bridge the opening at A on the plan (Fig. 3); the total span is 10ft. in the clear, and the lintel, which is 2ft. 6in. in width, is formed in concrete 12in. deep, with five stout tension-rods at 6in. intervals, each rod being supplied with a series of hangers.

The columns employed to carry the floors of the three stories and the roof are shown in detail in Figs. 15 to 26. The central columns marked A are shown in two sections (Figs. 15 and 16). The portion supporting the roof above the third floor level is 9in. square, with quadruple reinforcement disposed at the angles, and linked together at 9in. intervals, an enlarged section being given in Fig. 19. The size is increased to 14in. square below the third-floor level, and a larger type of rod is employed in this section, as shown in the enlarged detail, Fig. 21. The column at the first-floor level is 18in. square, with eight vertical rods linked by both circumambulating and cross rods at 9in. intervals, in the manner indicated in Fig. 23, and similar sections are employed on the ground-floor where the columns are 22in. square (Fig. 24).

The foundations for this work are of a particularly heavy type, and couple the loads received from each pair of columns by means of the transverse beams shown in Fig. 27, which, it will be seen, are constructed to provide resistance on this basis across the span of 10ft. between the centre of pressure of the two loads, the remaining 5ft. at either end being constructed in cantilever form.

A close lattice reinforcement of small rods at 3in. intervals is provided to distribute the load over the base area of 200ft. super, an intermediate distributor, 16ft. in area, similarly formed, being placed centrally in the concrete bed beneath each of the concentrated loads, and slightly above the secondary longitudinal reinforcement, which is 8ft. long and 4ft. wide in the centre of the span. Bonding-rods are provided at 6in. intervals, linked to both rods in the tensile reinforcement of the beam portion, the remainder of the shear members being linked to the lower rods at 8in. intervals. Especial care was taken in securing a true foundation for these columns, and with this object an additional precaution was taken, by providing a 6in. bed of S to 1 concrete below the foundation proper, which was constructed in 5 to 1 concrete in common with the whole of the structural work in this block.

The end pair of columns erected at BB in Fig. 3 are shown in detail in Figs. 17, with enlarged sections (Figs. 20 and 22) illustrating respectively the design at the third- and second-floor levels. A similar

Model last year. We reproduced several of his sheets at the time. They here appear to a much larger scale. In the same competition Mr. F. Dowdeswell came strongly to the front by his excellent set of drawings of St. Lawrence Jewry, Gresham-street, E.C., and he has done well to lend them for the following notice, where they are nicely reproduced. We complete our own photographic from them by the double page plate appearing in the BUILDING NEWS to-day. The broadsheet set of St. John Baptist Church, Keystone, Hunts, measured up by Mr. H. Hubert Fraser, Pugin Travelling Student, 1910, is here drawn, with the tower of 14th-century work, the west door of unusual character. Hawkswood's Church, Spitalfields (1714-29) is fully illustrated by Mr. W. J. Durnford, who appreciates the style by adapting his draughtsmanship to it, and this is not always thought of by sketchers. The Hall at Neville Holt, Leicestershire, 1476, is not so well known as many other older dwellings, and therefore, Mr. L. M. Gotch had an advantage when he selected this building for his capital drawings. The sheet of the roof framing showing the timbering in diagrammatic perspective, is particularly good, and so are his sections of mouldings. The School House, Bisleigh, near Melton, Leicestershire, has appeared in our pages from this same drawing of this Derbyshire example of English refinement in façade treatment, and its details, not given before, are here added. Mr. J. B. F. Cowper's drawings of the 13th-century spire and belfry of St. Mary's, Stamford, and those by Mr. H. Hubert Fraser of St. Andrew's contemporary church, likewise his sheets of the Rectory, Tibbalds Church, in the same county of Huntingdon, add to the value of the folio, in which one of the best perspective sketches is Mr. Cowper's view of the tower of St. Cuthbert's, Wells. Le Vieux Saint Etienne, Caen, makes a bristling and beautiful subject for the pencil of Mr. A. G. Horsfield, and we are so glad to see a large reproduction of Mr. Geo. H. Heyworth's truly wonderful elevational measurement of the florid façade of Notre Dame Cathedral, Rouen. We gave the same study as a double-page, but here it figures to double-folio size, with Senlis South Transept front by the same indefatigable hand, skirting nothing, and expressing all, too. Exceptional subjects like the Durkân Bet Kamel el-Din, Cairo, from whence Mr. William J. Jones also shows a typical house near the Mosque of Ibn Tulun, cannot be passed without notice, and Mr. W. J. Palmer Jones gives a correspondingly curious example from the Mosque Doorway, Cairo. The Monastery of Der Surian, Wady Natrun, Lower Egypt, shown by a completed plan to scale, and elucidated by photographs, also the measured drawings of the domical Church of Al Adea, in the same monastery, are of particular interest, much enhanced by Mr. Wm. J. Jones's detail drawings of 10th-century Egyptian elaboration and design. The volume ends with the same contributor's pencil study of the Temple of Thotmes III. Medinet Habu, Egypt, of the XVIII. Dynasty, B.C. 1503-1449. These subjects give special point to the individuality of the frontispiece already referred to in the outset of these remarks. The A.A. Sketch Book maintains its standard of value and merit.

in answer to these problems—strictly limited. Thus the designs for Subject I. must be sent in to the Secretary R.I.B.A. or to the secretary of the allied society for the district in which the candidate is working by February 29, 1912; those for Subject II. by April 30, and those for Subject III. by June 30. This time will be extended for students in the Colonies; see dates following list of subjects below.)

The drawings to be on imperial sheets. The subjects for the first half of the year 1912 are as follows:—

SUBJECT I.

(a) A large Monument, to commemorate King Alfred's refounding of London one thousand years ago, for a public place in the City, not to cover more than 500 superficial feet.

All drawings to be in scale and shaded. (b) A Terrace of Five Houses, 20ft. frontage, each six stories high, including basement, facing the parade of a small watering place. Detailed construction of one house to be given and a design for the complete terrace.

Drawings required to be in scale and in scale.

SUBJECT II.

(a) A large Monument to an Explorer, to be placed against the wall of a public building.

Shaded drawings required to be in scale.

(b) A Cloister with external entrance gateway or tower to a collegiate building round a courtyard 100ft. square.

Drawings to be in scale, with in scale details of the complete construction of one bay.

SUBJECT III.

(a) A Detached Bedroom to a large country house, to be connected with the house by a covered way. The decorations should be specially considered.

Shaded drawings to be in scale, showing both interior and exterior, and a detail of decoration.

(b) A Landing Stage to a river or lake, with a restaurant.

Drawings to show complete construction in scale and in scale.

DATES FOR SUBMISSION OF DESIGNS IN 1912.

| | Subject I. | Subject II. | Subject III. |
|------------------------|------------|-------------|--------------|
| United Kingdom Feb. 29 | April 30 | June 30 | Sept. 30 |
| Johnannesburg April 30 | June 30 | Aug. 31 | Oct. 31 |
| Melbourne May 31 | July 31 | Sept. 30 | Nov. 30 |
| Sydney May 31 | July 31 | Sept. 30 | Nov. 30 |
| Toronto March 31 | May 31 | July 31 | Sept. 30 |

THE SUBJECT OF CONSTRUCTION AND SHORING.

The Board of Architectural Education have received a communication from the Examiners to the effect that many of the candidates at recent examinations have shown weakness in the subject of construction in general and shoring in particular. They would, therefore, direct the attention of the masters of the architectural schools to the importance of impressing on their students the necessity of studying more carefully this important branch of architectural education.

THE TENDENCY OF RECENT MODIFICATIONS OF THE LANDS CLAUSES ACTS.*

By FRANK W. HUNT.

(Continued from page 59.)

Under the Act as first obtained all interests between the freeholders and the occupying lessees were purchased. Extension of time has been authorised on two subsequent occasions, although on the last occasion objection was taken in the House of Commons to the proposal. I do not think any further extension of time is likely to be applied for, but any interests which do not fall in soon will have to be acquired under the Lands Clauses Act. So far as I can see there is nothing to prevent promoters adopting such a course, which is substantially that indicated by the Select Committee of 1894; but if there is a doubt under existing legislation, I should not anticipate any hesitancy on the part of Parliament in granting such modification as

would lead to its assumption. Moreover, the more recent Acts relating to compensation schemes authorise the purchase of land as shown on the deposited plan and only so far as new roads and water existing roads, but also to form convenient buildings and to provide facilities for recreation people who would be displaced. The following is an example of such a provision from a recent Act relating to improvements in London: "Subject to the provisions of this Act, the Council may enter upon, take, and use all or any of the lands shown on the deposited plans and described in the deposited book of reference which they may require for the purposes of the improvement, or for providing space for the erection of houses and buildings adjoining or near to the improvements—or for any other purposes of this Act." The last phrase of this extract embodies the most recent amplification of the clause. It is interesting to note in the Development of the Land Clauses Act, 1909, that the Road Board, where the Treasury have approved a proposal by the Board to construct to new road, may acquire the land requisite for the formation of the road, and in addition may acquire land on either side of the proposed road within 220 yards of the middle of the proposed road. The object of this provision was doubtless to enable the Road Board to recomp themselves some of the large outlay involved in the formation of new thoroughfares by securing the enhanced value conferred upon land immediately abutting on the new road, although there is included in the Act a modified application of the same result by betterment to secure the same result by different means. So important did Parliament consider the principle of taking only so much as was required for the undertaking, that one of the groups of sections of the 1845 Act contained special provision as to the disposal of surplus lands. A period of six years, or the special Act prescribed in such period, within which the surplus land were to be sold; and, if no sale within the general or special prescribed period took place, the surplus property vested in the owners of land adjoining thereto. Special Acts within recent years, other than Railway Acts, almost without exception have excluded this portion of the 1845 Act, as might have been anticipated from what has been instanced above. During the last few years, nearly, if not quite, the whole of the great railway companies have obtained special powers with reference to surplus lands, more particularly in the direction of obtaining an extension of the period within which the completion of the works. Even so long ago as 1872 some of the railway companies obtained relief in that direction. In a recent session several of the larger railway companies operating in London obtained complete exemption from the operation of this section. For example, the London and North Western Railway Company, in the exercise of the power provided that the company shall not be required to sell or dispose of such lands, but might retain, hold, or use, or lease, or otherwise dispose of the same. As a modification of the principle, the Baker Street and Waterloo Act, 1906, contained provisions excluding Section 127, and enabling the company to build over the station and sell or lease the same. In one case at least the modification took the form of enacting that the surplus land of the company should not be subject to the provisions of the Lands Clauses Act.

(3) The basis of compensation under the Lands Clauses Acts is the value to the owner. "When Parliament gives compulsory powers and provides that compensation shall be made to the person from whom property is taken for the loss he sustains, it is intended that he shall be compensated to the extent of his loss; and his loss shall be tested by what was the value of the thing to him, not by what it will be if it is by the law being acquired by him." The theory of the value to the owner received considerable emphasis in the case of "In re Ossalsini v. The Manchester Corporation," decided in 1887, although four years earlier the Court had upheld an award where the arbitrator had

* Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Jan. 8, 1912.

THE R.I.B.A. EXAMINATIONS. THE FINAL: ALTERNATIVE SCHEME OF TESTIMONIES OF STUDY.

The alternative scheme of Testimonies of Study for the Final Examination will come into operation at the option of the candidates in November next, and after the end of the year 1913 the existing Testimonies of Study for this examination will be abolished. Six Alternative Problems in Design will be set by the Board of Architectural Education each year, and the candidates for the Final Examination must submit designs in answer to at least four of these problems. These alternative problems will be published twice a year, three sets in January and three in July. This is done for the convenience of candidates, but it must be distinctly understood that the time for sending in the designs

taken into consideration the special value of the land owing to its fitness for the purpose of reservoir and waterworks. In 1904 the theory was so well established that the Courts held that the natural adaptability of land for a special purpose is not only a proper matter for consideration, but before such a purpose could be excluded it must be shown on the facts that there is no reasonable possibility of a market for the land in question apart from the particular scheme under which it is taken. Recent legislation of a special class has modified this principle, that compensation should be based upon the value of the land. Legislation relating to insanitary areas has always made special provision on this head. The original Act of 1875 fixed the basis of value at the market value, due regard being had to the nature and condition of the property. This was value not sufficiently stringent, and certain further stipulations as to interests created and works executed after the date of the advertisement of the scheme were imposed by the amending Act of 1882. The alleged great cost of clearance schemes was still the subject of much discussion, and a very strong representative commission was set up in 1888. The report of this Commission formed the basis for the consolidating and amending Act of 1890. The basis therein set up for the value of property taken in connection with an insanitary area is very clearly defined. It is the fair market value of the property, as valued, thus excluding the effect of special value to the owner. The arbitrator must consider the condition of repair and probable duration of the buildings, and must disregard any additions to, or improvement of, the premises made after the date of the advertisement, and the rental is enhanced by the premises being used for illegal purposes, or overcrowded to an extent dangerous to health, these considerations must be disregarded and a fair rental value assumed. Further, if property is not in reasonably good repair, the arbitrator must deduct the amount necessary to bring it to a proper condition; and in certain cases is directed to value the property as a site plus the value of old materials. Under the Act of 1845, the value is the value of the interest as existing at the date of service of the notice to treat, and early decisions settled that the nature of the interest is ascertained by the service. "I think that the valuation ought to be made as at the time the house was about to be taken, and should be made of the exact interest which the plaintiff would at that moment have had, assuming that the house had not been taken." The scheme of the Act I take to be this: That every man's interest shall be valued *rebus sic stantibus* just as it occurred at the very moment when the notice to treat was given." ("Penny v. Penny.") In practice the nature of the interest is fixed by the service of the notice to treat; but the value of that interest is assessed at the date of the notice, on the ground that the claimant cannot have possession and compensation for the same period. After the service of the notice to treat the owner cannot lawfully deal with his interest, and an interest created or enlarged by him after the service of the notice is not the subject of compensation, under the Lands Clauses Act. A long series of cases supports the latter part of this proposition; but it is to be observed that it is the interests created after the service of the notice to treat which are not to entitle the parties to compensation in respect of the notice. The first part of the proposition relies upon a case decided in 1905, where it was held that a notice to treat served by a railway company on a landowner so far constituted a contract that the owner could not afterwards put the property up for sale. This view was at a much more recent date, in 1906, emphatically modified, as the following words from the judgment of Lord Justice Stirling indicate: "The land owner, however, is only precluded from dealing with his property in such a way as to subject the company which has given the notice to a greater liability in respect of compensation. So that the notice does not deprive this rule he may, it seems to us, sell and convey his land to a purchaser."

Accepting this decision to represent the correct law on the subject, the Housing Act, 1890, constituted a departure from the general practice under the Lands Clauses Act by providing that when assessing compensation in respect of property compulsorily acquired under Part I of that Act, there should be included in the value of the property any sum in respect of any interest acquired after the date of the publication of an advertisement stating that the improvement scheme had been made, so as to increase the amount of the compensation to be paid for the lands. This statutory provision has formed the model of similar clauses in the Housing and Private Bills, particularly for London, and I think I may say that from 1895 to the present time every Act relating to the purchase of property for public purposes in London has contained a clause on the following words: "In settling any question of disputed purchase money compensation under this part of this Act the Court or person settling the same shall not award any sum of money for, or in respect of, any improvement, alteration, or building made or erected, or for, or in respect of, any interest in the land created after the day of the insertion in the Official Gazette of such person the improvement, alteration, or building, or the creation of the interest in respect of which the claim is made was not reasonably necessary, and was made or created with a view of obtaining or increasing compensation under this Act." The date inserted in the clause is generally the date when the proposals were first made public, although in a case before a Committee of the House of Lords the date of the Parliamentary Notice was inserted in lieu of the date when the scheme was first made public. A similar clause is also included in Bills introduced by the Board of Education to confirm Provisional Orders made under the Education Acts relating to the purchase of sites for schools in London. The case referred to by the President in his inaugural address, where powers were brought to sterilise for compensation purposes any enhanced value accruing from public works executed within five years before the service of the notice to treat, may have reference to circumstances somewhat similar to those related above. I have not met the case in question; but the principle is not unknown in the practice of Parliament. The question of the purchase by a public authority of the water companies of London had been a subject of much consideration and public discussion for years. Parliament repeatedly inserted in Acts obtained by water companies clauses sterilising the value of the powers for compensation purposes of which the following is an example: "If the undertaking of the company be purchased within seven years of the passing of this Act otherwise than by agreement by any public body or trustees, nothing in this Act contained shall authorise the company to treat in account or to make any claim in respect of any advantage conferred on them by, or resulting from, the passing of this Act. Provided that in the event of such purchase the company may bring into account the actual amount of any capital expenditure made by them in the purchase of the power of the undertaking, one case at least the proviso as to capital expenditure did not appear. The compensation is to be assessed in respect of the damage sustained by the owner, irrespective of any advantage he may otherwise obtain from the carrying out of the undertaking for which the purchase is made and the purchase of the undertaking in 1896, a jury found that, notwithstanding the operations of a company put an owner to expense in rebuilding a wall, the damage he sustained was nil owing to the enhancement in the value of his property by the company's operations, and the Courts supported the verdict. The principle of betterment, or a set-off of advantages obtained against compensation claimed for damages, appears first to have been embodied in the Housing Acts. A paragraph from the Report of the Royal Commission on Housing gives the history quite shortly. In this country the principle of betterment has been in a small extent adopted in the Acts of 1879 and

1882. The former provides that an arbitrator is to take into account, in estimating the amount of compensation to be given to an owner, any additional value given to the adjoining property of the same owner by reason of the destruction of his house, which is in a bad condition. This, to some extent, included the principle of betterment, but regards the same owner. Then, in a clause in the Act of 1882, a provision was introduced that where an obstructive building is taken for the purpose of improving the adjacent property, the improvements given to the property may be charged upon it in the shape of a rate in aid. These were embodied definitely in the Housing Act of 1890. Part II, relating to the removal of an unhealthy dwelling-house as contrasted with unhealthy areas dealt with under Part I. Section 41 provided that in all cases in which the amount of any compensation or the purchase price of the property to be settled by arbitration. . . (2) (b) The arbitrator shall have regard to, and make an allowance in respect of, any increased value which in his opinion will be given to other dwelling-houses of the same owner by the alteration or demolition by the local authority of buildings. Under Section 38 of the same Act, relating to obstructive buildings, the benefit of an owner of any other building is taken into account; but the total amount of such enhancement to be recovered by the local authority is not to exceed the compensation to be paid by the local authority for the demolition of the obstructive building. This provision was not affected by the 1909 Housing Act. Provisions embodying the same principle were included in the Light Railways Act, 1896, where the proviso to Section 13 is as follows: "Provided that in determining the amount of compensation the arbitrator shall have regard to the extent to which the remaining and contiguous lands and hereditaments belonging to the same proprietor may be benefited by the proposed light railway." Again, in the Development and Road Improvement Act, 1909, the special provisions as to the local compensation of the arbitrator, set out in Schedule 1 contain the following: (c) In determining the amount of any disputed compensation under any such order. . . the arbitrator shall have regard to the extent to which the remaining and contiguous lands and hereditaments belonging to the same proprietor may be benefited by the proposed work or road for which the land is authorised to be acquired by the undertakers." A much wider question arises when works of improvement are undertaken by a public authority. The 1894 Committee of the House of Lords was appointed to consider and report whether "in the case of improvements sanctioned by Parliament and effected by the expenditure of public funds, persons, the value of whose property is clearly increased by an improvement, can be equitably required to contribute to the cost of the improvement, and if so, in what manner." Much evidence, reported that: "(1) The principle of betterment, in other words the principle that persons whose property has clearly been increased in market value by an improvement effected by local authorities, should specially contribute towards the cost of the improvement, is in itself just, and such persons can be equitably required to do so. . . ." The Committee laid down certain rules, the Standing Orders of the House were subsequently amended, and in respect of certain Bills then before the House a clause was settled embodying the Committee's recommendations. This clause has since appeared in a limited number of Acts, principally relating to London. The costs connected with the elaborate procedure are very heavy, and only in very special circumstances has it been found financially advantageous to apply the principle. The case of the South Eastern Railway, where betterment accrued, the whole of the property, viz., that of the south side of the Strand, was excluded by a Committee of Parliament from the betterment area. In quite a large number of recent private Acts obtained by municipal authorities the same principle is embodied in a somewhat different form differing from what one may call the standard clause,

the owners of and other persons interested in those buildings to sell and convey to the undertakers the portions of the buildings so required, if the arbitrator is of opinion that such portions can be severed from the remainder of the properties without material detriment thereto, and, in such case, the undertakers shall not be obliged to purchase the whole or any greater portion thereof, and shall pay for the portions acquired by them and make compensation for any damage sustained by the owners thereof or other parties interested therein by severance or otherwise." Although for many years it has been the practice for Parliament to give relief in some form or another from the obligation of Section 92, it is only in comparatively recent years that absolute power to take parts only has been allowed. These are generally granted only to public authorities, and the growth in connection with London improvements may not be uninteresting. For many years isolated properties were allowed by Parliament to be interfered with by having parts only taken without the promoters being called upon to take the whole. Prior to 1898 the powers were usually subject to the material detriment clause, although in 1897 a clause was accepted allowing parts of a small number of scheduled properties to be taken without this qualification. Then in 1898 the whole question was discussed by the Parliamentary authorities upon a Bill, the first of its kind, designed to effect the widening of a large series of streets by the purchase of the houses and courts only. The Act conferred the absolute power to take parts only according to a schedule thereto without the qualification as to material detriment, while a further schedule set out the few cases to which a material detriment clause should apply. Although a novelty, no cases reached the Courts, and I believe no claims were referred to a jury. These restrictions have now become standardised, but in the last year or two with a further extension. It has been applied to shops projecting beyond the main front walls of buildings, and the clause has now added to it a proviso inserted at the instance of the Lord Chairman of Committees of the House of Lords:—"Provided that this section shall not entitle the Council to take or interfere with the main structure of a house, building, or manufactory."

I think I have shown how the six principles deduced from the 1892 Act have in course of time, and principally in recent years, been modified, if not actually changed. It is fair to say that the greatest changes have been made in powers granted to public authorities; the distinction made by the Courts in construing statutory provisions having in later years influenced the character of the powers granted by Parliament. We may now enunciate the same six principles in the form in which they have been more or less generally embodied in Private Bill legislation authorising the purchase of property compulsorily. I must not be understood to say that they all appear in any one statute; but only that Parliamentary sanction may be found for them substantially in the form in which I state them:—

(1) Large powers for the acquisition of property compulsorily for public purposes exercisable without the necessity for special application to Parliament in some instances, by means of resolution of a public authority only; or by means of an order confirmed by a Government Department.

(2) The lands to be taken are not restricted to what are actually required for the undertaking, but extend to large areas for recompense and for reinstating persons displaced.

(3) A universal exemption from the sections relating to the sale of surplus lands now exists.

(4) The substitution as the basis of compensation of market value for the value to the owner; with the exclusion from consideration of any new interests created after the date the scheme was made public, or for any additional alteration to the premises made after the same date. The rights of promoters, in having the compensation assessed, to pay

in aid the benefit an owner will obtain from the execution of the works.

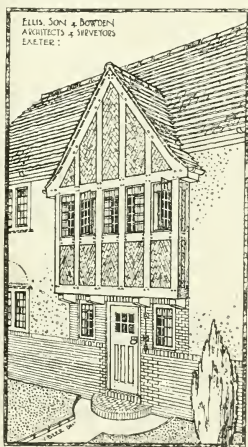
(4) Express statutory provision that no additional allowance is to be made because the purchase is compulsory, thus depriving claimants of the customary ten per cent.

(5) Statutory designation of the character of the tribunal to settle disputed cases of compensation, even the personnel being determined, not by the parties, but by an independent authority, an arbitrator, and not a jury, being the normal tribunal. Modification of the Lands Clauses Acts as to the payment of costs in certain cases; and the limitation of witnesses.

(6) Promoters obtain absolute power in some cases, and in others a qualified right to take parts required without being compelled to take the whole. The tendency of recent legislation as shown above would indicate that, at least so far as powers for public authorities are concerned, the time has arrived for a codification of the law relating to the purchase of property for public purposes. The manner in which these principles should be applied, and the safeguards with which they should be surrounded cannot be dealt with in this paper; but there is no doubt that the subject is one of first importance, and deserves the careful and exhaustive consideration of all members of this Institution.

HOUSE IN WEST AVENUE, EXETER.

The illustration shows somewhat in detail the central feature of the house, which emphasises the front entrance. The main exterior walls of the house are of local brick,



roughcast and whitewashed, except for the plinth, which is faced with hand-made sand-faced bricks. The roof is covered with local plain red tiles. The windows are of the casement pattern, with metal casements in wood frames and glazed with leaded lights.

The overhanging gable illustrated forms a bay off the half-space in stairway, and is central over the front entrance; the half-timber work is of oak framing, left rough from the saw and treated with oil, and is filled in between with hand-made Otter bricks, the whole being carried on heavy oak cantilevers. The wood and ironwork generally is painted a bright green.

The house was designed by Messrs. Ellis, Son, and Bowden, architects and surveyors, Bedford chambers, Exeter, and the contractors were Messrs. Westcott, Austin, and White, also of Exeter.

"BUILDING NEWS" DESIGNING CLUB.

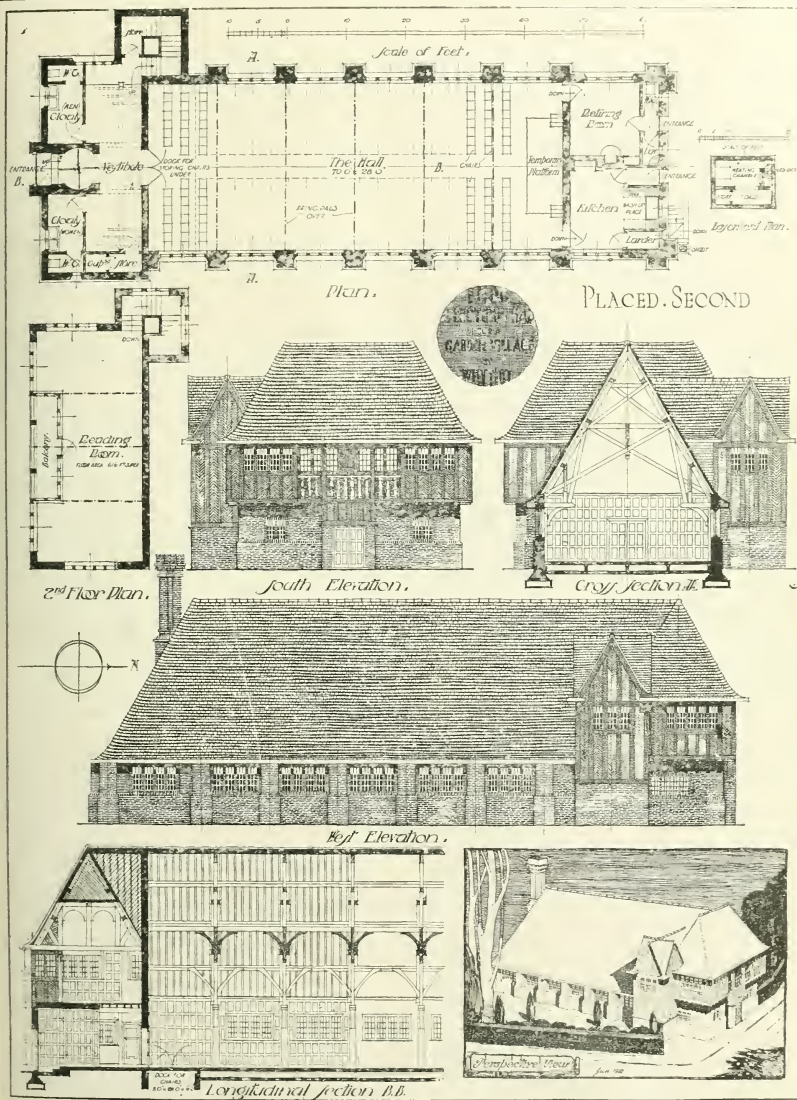
A LECTURE HALL FOR A GARDEN VILLAGE.

We place "Five Towns" first, "Why Not" second, and "Veritas" third. All three submit most creditable drawings, as will be seen from the accompanying illustrations. They are executed, if anything, somewhat too finely for journalistic reproduction; but, saying this we do not wish to undervalue the essential merit of careful delineation carried out thoroughly in detail. In the face of so much indifferent draughtsmanship continually brought before us, it is really a pleasure to be enabled to give good work of this kind; but, at the same time, it is desirable to suggest to our contributors the use of bolder lines in future, keeping the lines drawn less closely together, in order to allow proportionately for the exigencies of reduction in illustration; otherwise it must occasionally happen that an inadequate result only will be obtainable. On the other hand, of course, from the originals, but the readers have to judge from the representations appearing in the BUILDING NEWS; consequently, if any discrepancy does occur this warning ought to be remembered.

The following is a reprint of the instructions issued for the competitors:—A Lecture-hall for a Garden Village, with two cloakrooms (each to have a w.c.) at the entrance end, over which there is to be a reading room about 35ft. by 16ft. The entrance vestibule to be roomy, and have a revolving doorway lobby. A the platform end of the hall a retiring room for use of committee, with a lavatory and a w.c., and a small kitchen, with larder and pantry wash-up place, adapted to the work of furnishing teas and light refreshments on occasion. A little heating chamber and fuel place in the basement. The hall is to be 70ft. long by 28ft. wide. The small platform to be removable. Seating by chairs, and provide a deck for storing them below floor of hall, which is to be boarded suitable for dancing. The site is open on all sides, and is level. The building, facing south, will stand at the end of two radiating roads, one on either side, and will face the central circus of the estate, from whence the roads diverge. The land round the building will be laid out as a garden; but there will be no forecourt to the hall, as carriages may draw up to the portal. The style is left to competitors; but the material must be brick, with tiled roof. Plan of both floors, two elevations, and two sections with view. Scale 8ft. to the inch.

"Five Towns," the premier competitor, omits to draw on a scale to his sheet, and so we have added one. No architect ought to be guilty of such an omission, and every drawing, before it leaves an office, should be dated. These two elementary rules, over and over again insisted on, are too frequently neglected. Oversights of this sort frequently lead to a lot of trouble in the course of business, hence these remarks. "Five Towns," however, has not forgotten one very practical thing, which "Why Not" and "Veritas" fail to see to, in common with many architects in actual practice. He has recognised that vent-pipes from soil-pipes, by compliance with urban and rural districts by-laws, have to be carried up at least 4ft. above the eaves of a building, or so far above the nearest adjoining windows. "Five Towns" having neglected this detail, for convenience attached to the cloakrooms at the front of the premises, as specified, some consideration was requisite as to the disposal of the ventilators in question. He has solved the problem by taking up the sink tubes on the facade in such a way as to minimise the objectionable appearance, without attempting to make features of them, as some endeavoured to do.

The casual and, perhaps, artistic readiness, impatient of sanitary requirements, may be under the impression that by picking out what thoughtless folk are apt to consider minor points, in this prominent fashion at the outset of our review, we are over-fascinated and inclined to be false by unduly overestimating trivial details. This would be



"BUILDING NEWS" DESIGNING CLUB: A LECTURE HALL FOR A GARDEN VILLAGE.

winding stair, all winders round the curved end, is tucked in, devoid of light, at the top, and here tall people would hit their heads getting up and down. The exterior is picturesque, but there is no side elevation, and, as far as we can find out, the reading-room hooded fireplaces, so chic in the section, have to make shift without chimneys.

"Norseman" is neat, but is so enamoured of bay-windows, that to balance them he crams a scullery, likewise a larder, into one of a pair. His vestibule has a colonnade in it, and just before entering the hall two deep, dark-niched alcoves add quaintness, but serve no other purpose whatsoever. Had the space so wasted been opened into the hall,

more sense would have been displayed. The purlins show in the roofed ceiling, but no outlets are given for ventilation. The exterior is poor and sparse-looking.

"Norvic" may not draw dashing, but he has more refined notions, and we wish to commend him for the front part of his scheme for its outside treatment, speaking reservedly.

At the last meeting of the Ventnor Urban District Council the report was submitted of a special meeting of the works committee which had met to consider the question of the extension of the Eastern Esplanade. It was stated that the committee had inspected the eastern cliffs, and recommended that the sum of £3,700 be expended in the construction of a sea-wall. There had been large slips at the spot, owing to the action of the sea at the base of the cliffs. The recommendation was unanimously adopted.

CURRENTE CALAMO.

The modifications in the R.I.B.A. final exams, which we give in detail on another page, are, we think, for the better. Perhaps one monument would have been enough for the first list of the new alternative "Problems in Design." However, as candidates need only take one, that does not matter. We are glad to find that the Examiners have sufficiently impressed the Board with the fact—that all who come into touch with them—that some of our budding architects are frightfully weak in the subject of construction generally and shoring in particular. No neglect tells more fatally in after-life, and examples of the evils resulting therefrom are, unfortunately, not few. Many students, and some architects in practice, seem to take it for granted they can get "all that sort of thing" done for them. They do, no doubt, after a fashion, and some of their clients find out the consequences! The warning sounded is a wise one, and will, we trust, be taken to heart by masters of architectural schools and others.

So little really has been actually done yet in the way of Town Planning that it is not exactly easy to discover why dissatisfaction seems already to be felt with the Local Government Board as an appeal tribunal. On Tuesday, at the usual meeting of the Warmley District Council, a letter was read from a firm of London solicitors, on behalf of a client of theirs, directing attention to the increasing tendency of substituting Government Departments for courts of justice, and suggesting that the Warmley Council should pass a resolution and forward the same to the Government in favour of an amendment of the Housing and Town-Planning Act, 1909, by substituting a judicial tribunal in place of the Local Government Board as the appeal tribunal. The Clerk and several Councillors spoke in favour of such a proposal, and the following resolution was carried *nom. con.*—viz.: "That the great and increasing tendency of substituting Government Departments for the courts of justice of the land as the appeal tribunal, should be strenuously resisted." We have not heard of anything very heroic being attempted at Warmley; or that elsewhere Mr. Burns has come down very hardly on property owners, who, we imagine, are the people who would prefer a "judicial tribunal."

The thoughtful lecture by Sir Clement Kinloch-Cooke, M.P., the Chairman of the Central Emigration Board, at the London School of Economics on Monday night, well deserves the careful consideration of every reader. With the general scope we have less direct concern in these pages, but we are sure he has put his finger on one blot. We have been as convinced all along as he is that by the additional taxation which the National Insurance Act has placed on industry there is great danger of an increase in unemployment. The main indictment he brought against the Government was that no attempt was made, or thought of being made, to attack the disease itself—that was to say, to provide the men with the work they need, or to place every efficient workman in the way of obtaining what is commonly called a living wage. No more little remedy was ever embodied in profitless legislation than this attempt to mitigate—at their own cost—the condition of the unfit and the workless, the

country remaining as it has done for years, over-populated; the pauper bill mounting higher and higher, and excessive competition in the labour market rendering family life in many cases an intolerable burden to the wage-earner. Unemployment, as we were told in the Minority Report of the Poor Law Commission, is no longer seasonal or spasmodic; it is chronic, constant, and growing. It is, in fact, the survival of the fittest, and in the struggle for existence many of the best must go to the wall, while we dole out relief, the cost of which is really wrung from their own small means, which is as inadequate as it is unfairly bestowed.

Presently we shall find the rates going up, thanks to the Insurance Bill. Birmingham has discovered it will cost the City £16,500 a year, which means rather more than another halfpenny rate. Some ten thousand of the municipal employees will come compulsorily under the scheme. Half of these have, in the past, been fully provided for, by contributory or other superannuation schemes, or by departmental sick clubs. Most of the employees will find themselves worse off, and will heartily wish Mr. George had adhered to his first intention and excluded them from the operation of the Act. As it is in Birmingham, so, of course, it will be in every district administered by a local authority of any sort. So the ordinary workman and employer have not only to pay their own contributions, but to help defray those of the municipal employer as well—another addition to the ever increasing burdens under which traders and householders stagger.

Early days, we suppose, to expect any benefits from the transfer of the telephones to the Post Office—even a touch of common-sense in high places! Here is a letter we have seen from a farmer at Erdington: "I am a farmer and have a telephone service, for which I pay £16 15s. per annum. I have written the Postmaster-General asking to have the cost reduced to £15, which is the price for which the Government will connect five farmers on one line. He replies he can not alter the price. I thought of writing again, asking him if he will put me, instead of the one receiver which I now possess, five instruments in the one room, then I shall have the whole paraphernalia which the Government requires. Do you think that would be of any use to show him the absurdity of his refusal? I should say it is within the distance from an exchange stipulated by the Government, and there are other lines on the same poles quite close to my house." Some of our own past experiences with the G.P.O. lead us to fancy a proposition of that sort might really commend itself to the P.M.G.!

The Librarian at the Rylands Library, Manchester, has issued an "Illustrated Catalogue" of the manuscripts and jewelled book-covers set out in the library hall during the recent visit of the Historical Association. Few of us, in these days of cheap reprints, realise the love and almost veneration our forebears had for books and manuscripts, or the art they lavished on the jewelled book-covers and highly-wrought cases into which the great monasteries and the nobles put them. The Rylands collection is the first in the British dominions and the third in the whole world, only those of the National Library in Paris and the Royal Library at

Munich surpassing it. It contains many manuscripts of the famous *Liber Primus* of Henry I. and Henry II. at least a hundred years earlier than those others from which the text of these important historical documents has so far been transcribed. Particulars of these and of the splendid volumes of Eastern manuscript may be found in the sixpenny catalogue, published by the Manchester University Press, and all interested should get it.

Applications close to-day for £1,100,000 of a new Second Debenture Stock with the Associated Portland Cement Manufacturers (1900), Ltd., are issuing at a price of £91 per cent., for the purpose of acquiring securities in the new company, the British Portland Cement Manufacturers, Ltd., recently formed. That company expects to control a produce of upwards of a million and a half tons annually and the various purchases to enable it to effect this are in course of completion, and the Associated Company has been largely instrumental in its formation. From the figures given it will have been noticed that a very considerable revival in its revenue was a gratifying feature of the last published annual return. For the year ending June 30, 1910, the total was £177,463 16s. 4d.; for that ending June 30, 1911, it was £238,402 18s. 7d. Whether that revival has been shared by the smaller producers, one or two of which, we notice, seem to be somewhat nervous as to the future, we do not know. To some such we should be inclined to hint that in these days of competition—next, of course, to up-to-date methods of production and distribution, such as those of companies like the Associated and the Saxon—publicity is indispensable, if users are to be kept acquainted with the existence of those anxious to supply them.

The Minister of Public Works, M. Augagneur, proposes to execute important measures of reform and reconstruction on the Western State Railway of France during the next two years. The total sum of £1,600,000 is to be spent, chiefly on improvement of the permanent way and of stations. Before the end of this year a new line from Paris to Havre will be completed. All bridges are being inspected and overhauled.

St. Edmund's Church, Aisle, Norfolk, will be closed for three months whilst undergoing extensive restorations. There will be a new heating apparatus, the old gallery will be taken down, the present seats will be shortened so as to make a passageway by the sides of the north and south walls, and new choir stalls will be placed in the chancel. The contract is between £400 and £500. Mr. A. E. Daniels, of Ayle, is the contractor, and Mr. H. J. Green of Castle Meadow, Norwich, the architect.

At a meeting of the streets and buildings committee of Edinburgh Corporation on Friday last, the borough engineer reported as to the desirability of passing a town-planning scheme with respect to an area of ground in the Bellevue and McDonald-road district, Edinburgh. After consideration, it was agreed to recommend the town council to adopt the scheme. The area involved extends from McDonald-road on the east to Bellevue Park on the west, and from East London-street and Hope-crescent on the south to Bellevue-road on the north, together with certain detached areas.

Professor Ernest A. Gardner has announced to give the following course of lectures at University College, Gower-street, W.C. on "The Visible Surroundings of Greek Life," on Fridays, at 2 p.m., beginning January 19, on the days: Greek Cities and Houses, evidence and general conditions. January 26: Cretan and Mycenaean Palaces. February 2: The Homeric Home. February 9: The Greek House. February 16: Public Buildings. Temples. Hall. February 23: Theatres. Extant. Buildings. March 1: Theatres—Performance of Plays. March 8: Types of Costume—Cretan and Mycenaean. Lunic, Doric. March 15: Greek Dress—normal and special.

THE CONSISTENCY OF CONCRETE.*

A circular letter of inquiry on the subject of the "Consistency of Concrete" was addressed to the members of the Concrete Institute, in which it was suggested that a specification as drafted would be of service, pending experiments and tests that ought to be made to determine the exact proportion of water to be used in concrete in order to obtain the best mixture. This specification is now slightly modified by the committee, as follows:

Consistency of Concrete.—For mass concrete the quantity of water added to the other constituents shall be sufficient to make a plastic mixture which, after thorough ramming, will quiver like a jelly. For reinforced concrete the quantity of water added to the other constituents shall be such that the plastic mixture is capable of being rammed into all parts of the moulds and between the bars of the reinforcement.

Note.—In dry or hot weather the quantity of water shall be increased in order to allow for evaporation.

Fifty-eight replies were received, from which a number of extracts are appended hereto. The only one deserving special consideration by the Reinforced Concrete Practice Standing Committee, who have come to the following conclusions:

1. It is inadvisable to lay down any definite rule as to the percentage of water to be used in mixing concrete, owing to the varying conditions which obtain. The proposed specification is difficult to improve upon, and seems to meet with general agreement.

2. The strength of concrete apart from any reinforcement increases as the amount of water used in mixing is decreased, this being more particularly the case during the earlier stages of the maturing of the concrete. Eventually, the wetter of two mixtures will approach more nearly to the drier in strength.

3. In reinforced concrete, particularly in such portions as may contain a large amount of reinforcement, the concrete should be placed closely together, it is essential that the concrete should be sufficiently wet to pass between the reinforcing bars, and to thoroughly surround every portion of the steel. This should be insured even at the expense of having the concrete wetter than would otherwise be desirable. Where the reinforcement is not very closely spaced, it is unnecessary for the concrete to be so wet.

4. Other conditions being the same, the drier the concrete the more quickly will it set and mature. This is of importance when there is any danger of green concrete being attacked by frost.

5. The wetter the concrete the greater is the tendency to contract during the process of setting and maturing. Appreciable contraction may sometimes continue for a period of several years.

6. The committee is divided as to the advisability of determining by some means of mechanical test the exact degree of "wetness" or consistency of concrete after mixing. If some scale of consistency were adopted, it would be possible to specify that concrete for any particular portion of the work should be of such and such a consistency after mixing. This would not, of course, be at all the same as specifying that any particular amount of water should be used in mixing such concrete, owing to differences of atmospheric temperature, aggregate, etc. The advocates of the institution of some such scale of consistency are of opinion that the Concrete Institute should carry out tests on the subject.

SUMMARY OF REPLIES RECEIVED.

1. Several correspondents advocate the consideration of the results of tests before any rule is arrived at.

2. One correspondent suggests that a table should be given showing the maximum difference found in practice with different aggregates in the usual proportions and under different conditions, the quantity of

water to be stated in gallons per cubic yard and the moulds assumed to be of soft wood. The form of table is as follows:

PROPORTIONS OF CONCRETE.
Gallons of water per cubic yard of materials.

| Aggregate, Dry. | Aggregate, Wet. | Sandstones, Colites, "Cementum" Brick. | | Granite and Hard Limestones. | |
|--------------------|--------------------|---|----|------------------------------|----|
| | | A. | B. | A. | B. |
| Dry weather ... | | | | | |
| Wet weather ... | | | | | |

A = for setting into corners and sticking to steel all over to prevent corrosion. B = for strength in masses of concrete.

3. Some correspondents point out that the quantity of water required might vary with the character of the cement—namely, whether "quick" or "slow" setting.

4. A correspondent points out that in one case 25 to 30 gallons of water per cubic yard of concrete has been advised, and, in another case, 21 to 24 gallons per cubic yard of dry material.

5. A second correspondent uses one gallon of water to one cubic foot of dry material where the aggregate is crushed and well ballast, in his case when the temperature has been above normal, it has been necessary to increase the amount up to 25 per cent. of the above stated quantity, and when the reinforcement is heavy and ramming difficult, a further supply of water is necessary, and 1½ gallons may be necessary.

6. A third correspondent says that usually about 22 per cent. of the total volume of cement and sand or 20 per cent. by weight of these are usually taken for the quantity of water, but points out that about 15 per cent. by volume is required to enter into chemical combination with the cement and sand, and the rest is lost through evaporation and in its place undesirable voids in the mass.

7. One correspondent suggests that the provision as to addition of water in hot and dry weather is unnecessary, for under such circumstances a certain increase would be automatically required to produce plasticity, and the rest is lost through evaporation and counteracted by means which tend to impair the quality of the concrete. He suggests the substitution of the following rule as sufficient to cover all cases: "The quantity of water added to the cement and aggregate mixture shall be just sufficient to produce a plastic mass after thorough and complete mixing."

8. Another correspondent would prefer to substitute the following wording for the clauses put forward: "For mass concrete as much water should be added as the mixture will take without spilling away or working up to the surface when the concrete is being conveyed to its destination. In the case of reinforced concrete if, after ramming into position, the water works up to the surface, the quantity may be considered excessive. Short of this, however, as much water as possible should be added."

9. A correspondent requires the condition "when the concrete is thoroughly rammed into place water shall only just appear on the rammed surface."

10. A correspondent suggests the insertion of the word "light" before the word "ramming," as the heavy way in which this is carried out, especially in reinforced concrete, often results in the boards of which the mould is made springing apart and so allowing the water and cement to ooze through the joints and detract from the final strength.

11. One correspondent suggests adding in the first paragraph the words, "and not more than sufficient" after the word "sufficient."

12. It is suggested that emphasis should be laid on the fact that the mixture must only quiver like a jelly *after* the ramming has been completed, and not before. It is also suggested that it might be advisable to state that where absorbent coarse materials are

used, great care should be taken to let them absorb all the water they require before being mixed with the cement, or having arrived by experiments at the amount of water which the aggregates will absorb, that extra amount of water should be added at the time of gauging. It is thought, however, that the former practice would be preferable.

13. One correspondent points out that the words "quiver like a jelly" would apply to a small aggregate and gentle continuous ramming, but that a larger graded aggregate would not show the same result.

14. One correspondent does not favour ramming of concrete, preferring "a plastic mixture of the utmost possible density, which will flow into position in the moulds and round and in contact with the reinforcement (if any) without ramming other than consolidation aided by iron bars or spades."

15. Two correspondents point out that the danger to be guarded against is a plastic mixture is advised is one of less homogeneity caused by repeated ramming resulting in the larger parts of the aggregate going to the bottom, leaving the fine particles at the top.

16. Another correspondent suggests that to the words "quiver like a jelly" should be added the words, "but in no case should the water be so much in excess as to cause the concrete to be of such consistency that when the mould is filled and rammed it has a distinct tendency to act as a semi-fluid under the pump."

17. One correspondent objects to the wording down of concrete to the consistency of slurry in order to make it run into the centering and round the steel, for the average centering is not sufficiently watertight to prevent a certain portion of the finest material escaping. He thinks that attenuated divisions in reinforced concrete work should be avoided, so as to do away with the necessity for making the concrete so liquid.

18. It is suggested that the specification should state that for reinforced work the concrete should not contain so much water as to cause a large quantity thereof to exude during setting.

19. It is pointed out that with reinforced concrete pipes it might be found impracticable to ram the mixture into all parts, and for such class of work it would have to be of such consistency as to run.

20. Several correspondents direct attention to the prevention of drying in hot climates. The procedure adopted by one correspondent is to use very little more water in the original mixture, but to shade the work from the direct rays of the sun for the first twenty-four hours. Then if in small blocks, they are totally immersed in a shallow tank of water, or if in mass concrete the work is covered with wet sacks or reed matting, which is kept at the point of saturation. In either case the concrete is sprayed with water twice a day for about a fortnight.

21. Another correspondent in hot and dry weather waters the concrete two or three times a day for a week or so.

22. One correspondent suggests adding the words "and absorption" after the word "evaporation." He thinks that in hot weather it is possible the false work should be watered on the outside unless a little extra water be added to the concrete.

23. A correspondent desires to call attention to the legal aspect of the case, which would probably be raised in the event of a dispute, and that is the "goodness" or "badness" of the rule. For this reason he thinks the personal element must be entirely eliminated, and the rule or specification should be so framed that the results will be the same irrespective of the persons who shall do the work. He suggests that a wooden box, 5in. wide by 3in. deep and 6in. high, with two 1in. square steel bars arranged vertically and attached securely to the 5in. side, which latter is to be hinged at the bottom to the remainder of the box so as to be capable of being opened. In use the box would be filled with concrete, after the specified time, turned with the side carrying the bars uppermost and opened, when it would be found whether the concrete kept the correct form of the mould. He suggests that

Our Illustrations.

NEW REREDOS AND RE-ERECTION OF THE SANCTUARY OLD SCREEN, CHICHESTER CATHEDRAL.

This work has been executed from the designs and under the supervision of the architect to the Dean and Chapter of Chichester Cathedral, Mr. Somers Clarke, F.S.A. Mr. John Tweed carried the figures in the new reredos. The altarpiece was carried out by the present Dean, Dr. J. J. Hannah, as a memorial to his wife. The oak screen closing the east end of the choir is presumed to have been originally set up by Bishop Sherburn; but nothing appears to be known as to what previously stood in this position to enclose the sanctuary before his time. This screen, considerably pulled about as it was, held the ground until a little while before the fall of the spire in 1890, when the first bay out of three of the four arms of the cruciform church—namely, one compartment of the nave and one of either transept—were crushed and absolutely demolished. The steeple was nearly 300 ft. high, and it telescoped when it fell. Sir Gilbert Scott was employed by the Reparation Committee to report upon the matter, and he estimated the cost of its rebuilding at £50,000. Mr. Richard Carpenter had previously acted for the Dean and Chapter, and for many years had charge of the works of repair in this cathedral, which in those days was understood and carried on in a very uncompromising way, and, indeed, at times was terribly drastic. The tower and spire crushed in their fall much that was beautiful and spoilt some treasures in the church beside beyond restoration. This work of renovation, after the death of Mr. Carpenter in 1855 was taken in hand by his partner, Mr. Slater, who, conjointly with Sir Gilbert Scott, rebuilt the steeple. Mr. Slater belonged to what has been described as the "rabidly Early school." He it was who condemned the old altar-screen as being too "debased," and not in accordance with his views; consequently it was removed; but most happily the major portion of the screen was not destroyed; in fact, all the main parts were some time ago found stowed away over the vault of the library simply as so much lumber. At the back of the altar Mr. Slater designed and erected an overpowering edifice in the "Early Style," with little coloured columns and large, overwhelming figures. This was found, even from the first, to be too incongruous to remain as a reredos, though for long years it stood in possession as a cold and dismal termination to the choir. The difficulty as to what should become of it if removed to make room for a more befitting altar-piece, was solved by a church in Brighton being desirous of taking Mr. Slater's reredos. This design being first, to be too incongruous to remain as a reredos, and then the "painted table," or, as it is now termed, the "reredos," must have occupied a well-defined space similar to that which is at present covered by what has now been put up. The woodwork and carvings of this reredos were executed by Messrs. Norman and Burt, of Burgess Hill, and the old altar, and the same way the gilding and painted decorations were done by them, their work likewise including the reinstatement of Bishop Sherburn's panelled screen. The sedilia occur to the right of the sacristy, and these, with the canopy and parclose screen to the rear, were also designed by Mr. Slater. He also designed, as a memorial to the Rev. James Vaughan, who for long years was a prominent parson in Brighton in the 'sixties.' This work was the gift of Mr. Vaughan's family. He was also a Prebendary of the Cathedral for a considerable period. Happily, Mr. Slater did not get rid of the ancient stall canopies, although they did not

belong to the period he patronised; but he ornamented them at the west end with a couple of very ugly canopied stalls for the use of the chief dignitaries, and he was responsible for an ornate sentry-box kind of throne for the Bishop. The organ-case of Charles II.'s time was thrown away. It was kicked out as worthless, and not a scrap of it remains. The south side of the greater chancel a tester has been set up over the tomb of Bishop Storey. The prolate looks very snug under this canopy, and his tomb has a metal screen to protect it. This finish to the monument forms a pendant to the sedilia opposite to it, and was done by the present Cathedral architect a short time since.

NATIONAL SILVER AND BRONZE MEDAL DRAWINGS FROM THE LIFE.

Mr. Julian Gould, of Ealing, won a silver medal for this shaded drawing of a man's head from the life, and the character and firmness of the handling exhibited by this life-like study at once attracted our attention when reviewing the collection of students' works in the autumn at South Kensington. The examiners expressed gratification at the larger number of drawings submitted in this useful class, and that the work, on the whole, showed much improvement, and a greater variety in the method of the work. The pen draughtsmanship of Mr. Charles S. Dunstan of Truro; in his shaded representations of birds from nature is very commendable, the form and texture being well expressed. It is very desirable that each drawing in competitions of this kind should be marked by a note stating whether it is drawn from life or from stuffed specimens. The obvious difference is very great. This study of a Raven (*Corvus corax*) alone deserved the bronze medal, for its lifelike pose, the head, eye, and beak being most capably drawn, while the plumage is detailed consistently with unhesitating skill throughout.

ST. LAWRENCE JEWRY, GRESHAM STREET, E.C.: DETAILS OF VESTRY.

The organ of this well-known church was illustrated in our issue for June 30 last, by view as well as elevation, from the same set of capital drawings as the measured details, by Mr. Frank Dowdeswell, of the Dean and Chapter. This church and of its interesting vestry, to which subjects we devote a double-page plate to-day. The communion railing and also the tested pulpit, as well as the altar itself, are figured on the same sheet. On September 29 we published the general drawings, including plans, elevations, and sections of the building. Mr. Dowdeswell added some interesting notes on the drawings, which he plotted on the spot, and his general account of the church appeared with our first plate on June 30.

DESIGNS OF A LECTURE HALL FOR A GARDEN VILLAGE.

(For assessor's award in this BUILDING NEWS Designing Club competition, see page 85.)

The town council of Aberdeen unanimously decided on Monday to purchase for the art gallery, at £1,400, "Penelope's Webb," by Sir J. W. Waterhouse, R.A.

At Ramsey, Hunts, foundation-stones were laid on Thursday in last week of New Wesleyan Sunday-schools to accommodate 500 children. They will be under the chapel, and are being erected from plans by Mr. H. J. Softly, of St. Ives. Mr. F. Giddings, also of St. Ives, being the contractor.

A ferro-concrete jetty has recently been completed for Messrs. Thorneycroft at Woolston. The jetty, which is 190 ft. long, was designed for the dead load of 100 ft. per square foot, with a moving load of two 5-ton travelling cranes. The contractors were Messrs. Playfair and Toole, of Northam Bridge Works, Southampton.

At Malvern, Mr. R. G. Hetherington has held a Local Government Board inquiry with reference to the urban district council's application for sanction to borrow £6,700 for the reconstruction of certain sewers. The scheme, which was explained by Mr. Thorp, surveyor, was heartily supported by Dr. Hetherington, the official officer of health to the Worcester-shire County Council. No opposition was offered.

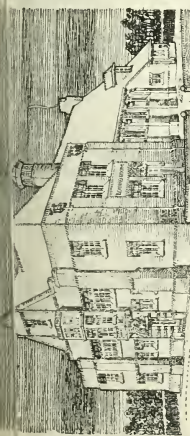
two boxes should be used, and that the composition should consider: (a) The size and shape of the boxes. (b) The time before the first box is to be opened (minimum). (c) The time before the first box is to be opened (maximum). (d) The amount of ramming (preferably none). (e) The degree of fullness of the boxes.

21. Finally, a correspondent calls attention to a different method of mixing concrete with the aid of advocates. He first thoroughly mixes one part of cement with, say, two parts of very fine clean sand, using clean water enough to make a mixture of the consistency of thin cream, and then remixes with three parts of wet sand coarser than the first. This total mixture of 1:5 is then mixed with, say, five parts of broken stone. He asserts that with the proportions mentioned—namely, 1:10, the same strength is obtained as with that of 1:7½ concrete of the usual class. The principle of the method is the obtaining, firstly, of thorough contact of the cement with every grain of the fine sand, which is rendered certain by the large proportion of the thin cream, thus insuring that every grain of sand is completely enveloped in the liquid mixture. A mixture of this consistency is well calculated in the remixing to adhere to all the wetter grains of the coarser sand, which will take up the superfluous cement and water and leave only that which sticks to the surface of the grains of the first sand. He thinks that the fine sand mixture will thus more nearly fill the voids of the coarser sand than happens in the usual systems of mixing, where many grains of sand get washed by the water, while in other parts many grains of cement are found stuck together. For a stronger concrete the mixing would possibly be one part of cement to 1½ parts fine sand, and this remixed with, say, 2½ parts of sand and 3 parts of broken stone. Another mixture would be 1 part of cement to 1 part of very fine sand; this remixed with 2 parts medium sand and again remixed with 3 parts very coarse sand; all finally remixed with 5 parts broken stone of different sizes. This system will produce about the same amount of labour as the common one, because the liquid mixture is small in bulk and quickly made.

OBITUARY.

The death has occurred at his residence in Huskisson-street, Liverpool, of Mr. H. Bloomfield Bare, F.R.I.B.A., a well-known Liverpool architect. Mr. Bare commenced practice as an architect in that city thirty years ago, after receiving his professional training in the surveyor's office of the London and North-Western Railway. For a period of five years he was in partnership with Mr. H. L. Beckwith, architect and surveyor, of Cook-street, and during this time Mr. Bare acted as secretary of the Liverpool International Exhibition of 1884. In 1885 he came to England. Mr. Bare took up residence in Philadelphia, where he practised as an architect, only returning to this country some seven or eight years ago. He immediately resumed his artistic activities, and associated himself with the organisation of the Art Workers' Guild. His society made rapid progress, and Mr. Bare showed himself most assiduous in his managerial efforts. He had been a Fellow of the Royal Institute of British Architects since 1888. He was also a member of the council of the Liverpool Architectural Society, one of its most active members. He was an active member of the Royal Art and Craft Club. The funeral took place on Friday afternoon at Anfield Cemetery. The remains had previously been privately cremated. The service at the graveside was read by Mr. Sidney Sykes, leader of the Church of Humanity, Falkland-street. Present at the graveside were Mr. Edgar Eccles, F.R.I.B.A., representing Liverpool Architectural Society, and Mr. H. L. Beckwith (late partner), and Mr. William Unsworth (district building surveyor), and other professional friends.

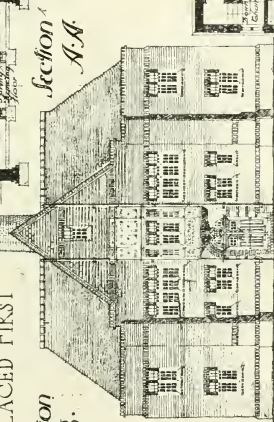
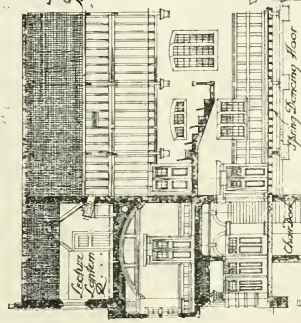
Messrs. McKim, Mead, and White, of New York, were the successful competitors in the recently held Minneapolis Art Museum competition.



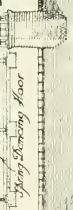
DESIGN OF LECTURE
HALL, STAFFORD
GARDEN -
VILLAGE by
The
Jonnrs
FIRST
PLACED

Section
B.B.

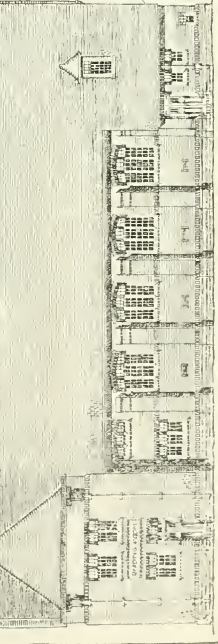
First
Jonnrs
FIRST
PLACED



Front Elevation



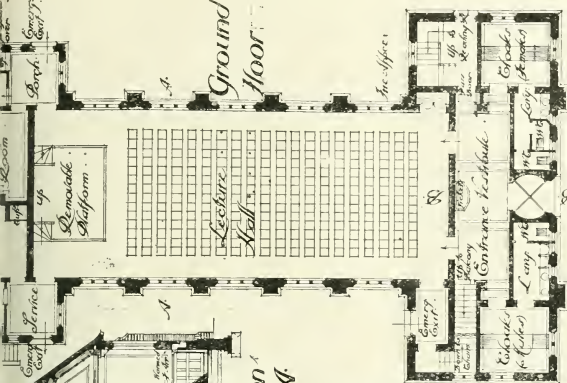
Side
Elevation



First Floor
Plan (Part)



Ground
Floor



times employed for those which we should now make of more precious metals. In the British Museum there is a large collection of these objects which were obtained by Mr. Layard in his excavations in the ruined city. The Greek bronze period, namely, from the middle of the fourth century a.c. are true bronzes consisting of copper and tin, with lead or zinc only as impurities, and occasionally admixed. A curious feature in them is the presence of no lead, but traces up to 0.5 per cent. The percentage of tin is somewhat irregular, but in most examples ranges from about 8 to 11 per cent. These alloys were undoubtedly made by melting together the metals copper and tin, and, as in the Bronze Age, by smelting stanniferous copper ores, or by melting copper with tin ore—the Macedonian alloys more particularly. A little later in Greek coins we find lead as an intentional constituent in various proportions, ranging generally from about 6 to 10 per cent, or even more, with a proportionate reduction in the percentage of tin. The Macedonian coins, however, with few exceptions, have their character as true bronzes. The alloys used for statues are frequently true bronze with 9 to 11 per cent. of tin, but in other examples about 5 per cent. of lead has been added, probably with the intention of increasing the fusibility of the alloy and its fluidity when molten. The statements of Pliny as to the composition and use of the bronzes as initiated in Rome throw but little light on the alloy; in fact, they are for the most part useless and misleading. As regards the Corinthian bronze, the beauty of which is so extolled by Pliny, the statement is made that the alloy was discovered by the Romans at the sack of Corinth, when vessels of gold, silver, and bronze had been accidentally melted together during the burning of the city, and produced a golden bronze. The Corinthian bronze, however, as mentioned in 146 a.c., but the excellence of Corinthian bronze had been recognised long before. Whatever may have been the exact composition of the alloy, it is probable that the alloy has never been cast. I may say that no addition of gold or silver to any copper-tin alloy will cause it to closely resemble gold. Imagination must, therefore, be responsible for the accounts given of this bronze by the authors, especially Pliny. We read also that its beauty was derived from being cooled in the water of the fountain of Peirene.

With the fall of Greece and the rise of the supremacy of Rome we enter an important period in the history of copper alloys. In Spain and in Britain we find copper smelting being vigorously carried on by the Romans, and in Rome and the chief cities of the empire a great trade in copper alloys was carried on. Statues and other objects of art, but for vessels of all kinds, furniture, and other articles of domestic life. Of special importance is the use for the first time in Europe. Among the articles which are representative of the Roman occupation of Britain, few are of greater interest to the metallurgist than the cakes of copper, which are now in the collection of the British Museum. Its weight is 26lb. 12oz. (rather, found near the old mines at Llandudno. The inscription on the words "Aureo Roma," meaning "to my partner in the world." The inscription, in fact, is a very large counter of lead—namely, from about 19 to 25 per cent., the tin being about 7 per cent. They were worthless for the purpose of coinage, but formed an alloy in which the large coin of the republic, which weighed from 8 to 11oz.—the "Ae." was cast. Copper-tin-lead bronzes appear also to have been used by the Romans for engineering and

industrial purposes. An interesting example of this use is afforded by the broken shaft of a water-wheel, which was found in the lower Roman workings of the north lode of the Rio Tinto mine. The water-wheel was probably built about the middle of our era, the coins of the time of Vespasian (70 to 81 a.d.) were found near it. The bronze used for statues by the Romans also always contains lead in considerable proportions, as much as 6 to 12 per cent., being often as much as 10 to 81 a.d.) were found near it. The bronze used for statues by the Romans also always contains lead in considerable proportions, as much as 6 to 12 per cent., being often as much as 10 to 81 a.d.) were found near it. The bronze used for statues by the Romans also always contains lead in considerable proportions, as much as 6 to 12 per cent., being often as much as 10 to 81 a.d.) were found near it.

COPPER-ZINC ALLOYS—THE BRASSES.

Zinc as a distinct metal was unknown in early times—in fact, as late as the sixteenth century it was not known in Europe; but there are strong reasons for the belief that the Chinese were acquainted with its use as early as 2000 years ago. It is occasionally but rarely present in the implements and weapons of the Bronze Age, and then only in small quantities as an accidental impurity, which has been derived from smelting copper ores containing it. In somewhat later times it occurs in rings, armlets, and other personal ornaments found in the ancient burial mounds of Germany and Denmark, but these quantities are of post-Roman date, and the objects mentioned have really been made from Roman coins. In Greek alloys zinc is never found as an intentional addition, but only as an impurity, about 1 to 2 per cent. or less; in fact, the Greeks knew of no alloy in which zinc was contained. Zinc is not Greek; but this, in my opinion, is only true for those containing considerable proportions of the metal, and not for those with small amounts just mentioned. In Roman times, zinc first appears in the coins of the Republic as an impurity; as an intentional addition, however, it only begins in the time of Augustus (20 a.c. to 14 a.d.), when brass was first made in Rome. The first alloy in which zinc was used was the "aureo Roma," a coin of 20 a.c., which contains 17.31 per cent. of zinc. The Romans were the first makers of brass. Although they were unacquainted with the essential constituent zinc, yet they had discovered that by melting copper together with a certain ore (calamine), a yellow alloy of a more golden colour than bronze could be obtained. It was first employed in the time of Augustus, and was of a higher value than that of bronze, even up to the time of Diocletian (286 to 305 a.d.), when six parts of brass were sold at twice the price of eight parts of copper. There is, too, an inscription in the "De Officiis" relating to its value in the fifth century a.d., in which he says that brass was then not very greatly inferior to silver. The method employed by the Romans in making this alloy of copper and calamine was a very simple one. It was conducted as follows:—The calamine was ground and mixed in suitable proportions with charcoal and copper in granules, or small pieces. The mixture was placed in a crucible, and was very carefully heated for some time to a temperature sufficient to reduce the zinc in the ore to the metallic state, but not to melt the copper. The zinc being volatile, it was evaporated, and the fragments of copper, converting them into brass. The temperature was then raised, when the brass melted, and was poured out of the crucible into a mould. The mixture was so effective that, until a comparatively recent period, all brass was made in Europe by the ancient process, and even until a few years before 1861 it was thus made at Pemberton's Mining Works, near Wigan, Lancashire, in "brass," and was generally believed to be superior in mechanical properties to brass made by using metallic zinc. The survival of this ancient process, affording an example of the conservatism characteristic of British metallurgy, as brass had been made in England by Emerson, using metallic zinc, in 1781. This, so far as I have been able to ascertain, was the first to be

made in Europe by melting copper and zinc together. In Roman alloys the percentage of zinc was very variable, ranging from 10 to 28 per cent. For ornamental purposes and armour they had an excellent alloy, of which the following are examples. Several vessels and studs which had formed the moulds of the bronzes were unearthed in the excavations at the Roman city of Silchester in 1900. In the eleventh century great care was bestowed on the purification of the copper invariably being used in the manufacture of crimine brass for the use of armour especially for the removal of lead, as it had been found that brass contaminated with that metal could not be satisfactorily gilt. For an account of the process of purification, see a paper conducted on but a small scale, we are indebted to a manuscript written by Rugerus Theophilus, a monk who lived in the early part of that century. The following is a translation by Hendrie:—

"Of the Purification of Copper.—Take an iron dish of the size you wish, and line it inside and out with clay, strongly beaten and mixed, and it is carefully dried. Then place it before a fire upon the coals, so that when the bellows are upon it the wind may issue partly within and partly above it, and not below it. And very small coals being put on, you will see the metal melt, and it equally, and add over it a heap of coals. When, by blowing a long time, this has become melted, uncover it and cast immediately fine ashes of coals over it, and stir it with a thin rod, and when you see the metal well covered with it, you will directly see the burnt lead adhere to these like a glue. Which being cast out, again superpose coals, and blowing for a long time, as at first, again uncover it, and as you wish, you do this until at length by cooking it you cast withdraw the lead entirely. Then pour it into the mould which you have prepared for this, and you will thus prove it if it be the art work of the pincers, and if it is not, before it has become cold, and strike it with a large hammer strongly over the anvil, and if it be broken or split, you must liquify it anew as before. If, however, it should become sound, you will see it in water, and you cook other (copper) in the same manner."

From this, therefore, we may presume that as far as the copper was concerned the calamine-brass of the Romans was a very pure alloy, and that made with spelter, the former being used in preference. It was preferred for the manufacture of buttons and articles to be gilt, as it was said to take the gold better in "water-gilding." It was also preferred for other purposes. It is difficult to see why there should be any difference between the two bronzes unless the spelter of those days was more impure than at present, possibly containing more lead and iron. Prejudice against the metal made by a new process may, however, have been a factor in the success of the operation which was raised to its use.

I hope that the outline of the history of copper and its alloys which I have endeavoured to place before you—though necessarily incomplete—may not be without value in these practical days. The influence of copper, and particularly of bronze, from the Age of Bronze to that of Imperial Rome, is an element which has played a greater part in the civilization of Europe than that of any other metal. This is often lost sight of in this age of iron and steel. It hence seemed to me that it might be of interest and profit to present to you a summary of our Institute an account of the achievements which our fellow-workers in bygone ages were able to accomplish without the elaborate appliances and scientific knowledge of our own times.

Mr. George Coult Douglas, a J.P. for the city of Edinburgh, has died at his residence in St. Andrews, at the age of seventy-seven. Mr. Douglas was for many years a builder and contractor in Edinburgh, and went to reside in St. Andrews in 1885.

A new cinema hall is in course of erection in Conington, St. Albans. The internal dimensions are 90ft. by 40ft. Mr. H. F. Mene is the architect, Mr. Ezra Dunham the builder; the Salisbury Fibrous Plaster Company, Hornsey, provided the plasterwork, and the architect's architect is Mr. J. W. Bristel, of London.

A sensational announcement comes from Quebec, according to the *Contract Record*, to the effect that the representative of a Scottish firm has been discovered in offering a bribe of 10,000 dol. to the consulting engineer for the works department of the city of Quebec, in order to obtain the acceptance of his firm's tender for cast iron pipe. The contract involved is for a water main to cost approximately 300,000 dol. The accusations are emphatically denied. The Douglas investigation will be made by the city council.

Building Intelligence.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH.—A drill hall is about to be built for the 9th Battalion Royal Scots (Highlanders) in Clarendon crescent, Edinburgh, at an estimated outlay of £7,000. It will be divided into two parts, and the outside is to be treated in a Classical manner, with pedimental decoration as the central feature. To the front will be the administrative block, composed of three floors, including the basement. On the ground floor level there will be two entrances. The recreation room for the men will be 40ft. by 25ft., and there will also be a room specially set apart for corporals. Other rooms here are for conducting business, for medical inspection of recruits, and for the use of the commanding officer. The officers' mess will consist of a room 40ft. by 20ft., a billiard-room, etc. On the first floor there will be a lecture hall, 62ft. by 40ft., which will be used for social gatherings, presentations of prizes, and lectures; the sergeants' quarters, a mess-room 40ft. by 20ft., and a billiard-room. The second part of the building is composed of a drill hall, 100ft. by 80ft., which is to be on the basement floor, where there will also be the wagon stores, 50ft. by 20ft., for the general service waggons, machine guns, etc. The architect is Mr. T. Duncan Rhind, A.R.I.B.A.

HEENOCK.—In Heenock parish, near Newton Abbot, a new village is springing up, in order that accommodation may be provided for the workers at the Teign Valley Granite Works, the number of employes having considerably increased during the past year or so. The directors of the company endeavoured to persuade builders to take the matter in hand, but these efforts proved unavailing, and they themselves obtained a desirable site near the present Heenock village. The directors took into consideration the question of the water-supply. A reservoir has been built which has a holding capacity of 30,000 gallons. The company is laying out about 10,000 in order to provide accommodation for the workpeople, upwards of fifty cottages are being in course of erection by Messrs. Cole Bros., of Bath, in accordance with the plans of Mr. C. P. Slowe, of Devonport. Two types of cottages are being erected—four-roomed dwellings (sitting room, kitchen, and two bedrooms), and the six-roomed dwelling, with an additional bedroom and scullery, the majority being of the larger type. The shops are also being built, and it is proposed that the new area shall be known as Teign village.

COMPETITIONS.

HASTINGS.—The new East Sussex Hospital Competition award is not likely to be made till the end of the month, and the assessor has not yet determined his award, the designs, of which there are fifty-two, being now under his consideration.

PAIGINTON.—The Paiginton Urban District Council have decided to invite schemes from engineers for the drainage of the district. The first premium will be £300, second £200, third £100, and 50 per cent. of the premium will be merged in the commission to be paid to the engineer who carries out the work. The redrainage of the district has become necessary, having regard to the rapid development of the town, especially on the higher levels, and the outskirts. The original scheme was prepared by Messrs. Wolfe Barry, Breton, and Brunel some twenty years ago, when the population was only 7,000; now it is over 12,000, and is rapidly increasing.

Mr. John Garstang is making interesting discoveries in his excavations at Merce and Kalmshua. The palace, near the Temple of Amen it is found, contains over forty chambers and a large court.

Mr. Henry Vale for many years surveyor of the East Preston Rural District Council, fell dead at an installation meeting of the Royal Arch Chapter of Freemasonry at Littlehampton on Monday night. He was about sixty-five years of age.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr. Edwin T. Hall, F.R.I.B.A., will read a paper on "Art Museums and Picture Galleries," at the General Meeting of the Institute fixed for April 1. The illustrations will include a fine collection of slides specially prepared for the paper. Mr. Hall's paper is in substitution of that on "Modern Methods of Construction," which Mr. William Dunn is unable to read.

THE SOCIETY OF ARCHITECTS.—The monthly meeting of the Society of Architects was held at 28, Bedford-square, W.C., on Thursday evening in last week, Mr. G. A. T. Middleton, A.R.I.B.A., past vice-president, occupying the chair. Ten nominations for membership and five for studentship were read. The following candidates were elected by ballot: As Members: James Burns, Blackpool; William Stanley Dean, Bournemouth; Robert Donnelly, Dublin; Theodore Monkhouse Ellis, Rossete road, N.W.; Thomas Elliott F. S. Chivers, 10, Sydney street, London; John Talbot; Daniel Andrew Lewis, Rochestown, Co. Cork; Frederick Matthews, Stoke Newington; Thomas Reid Peacock, Quebec; and Brian Edward Fitzgerald, Sheehy, Limerick. As Students: Albert Leigh Abbott, Donald Henry Butt, Francis John Abbott, Henry F. S. Chivers, Edgar K. Versheid, Alfred Stephen George Lawford Raymond Gower, Evan Daniel Jones, and Daniel Roy Lyne. A paper on "Illumination as a Study for Architects," illustrated by diagrams and lantern slides, was read by Mr. John Darch, F.S.I.; a full report was published in our last issue, pp. 54-55. A vote of thanks was passed to the lecturer, on the motion of Mr. H. Freyberg, seconded by Mr. B. R. Tucker, and supported by Mr. Justus Eck, Mr. H. Mackinney, and the chairman.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting was held in the society's room at the Leeds Institute on Thursday evening, January 11, the president, Mr. S. D. Kitson, F.R.I.B.A., in the chair. An interesting paper was read by Mr. W. W. Womersley, on "Reinforced Concrete Applied to Buildings." The lecture was illustrated by many slides, showing both structural problems and architectural treatments to interiors and exteriors. The lecture was concluded by a discussion, on which many practical details were debated upon. A vote of thanks was passed, on the motion of Mr. G. S. Grundy, seconded by Mr. W. H. Thorp, F.R.I.B.A.

THE ULSTER SOCIETY OF ARCHITECTS.—This society held its annual general meeting on Monday, January 8. There was a good attendance of members and associates, including, among others: Messrs. R. M. Young, F.R.I.B.A.; W. J. Gilliland, F.R.I.B.A.; J. J. McDonnell, J.P., N. Fitzsimons, F.R.I.B.A., H. Seaver, B.E., W. C. Maxwell, A.R.I.B.A., T. Heaver, and J. S. J. Phillips, A.R.I.B.A., hon. secretary. Routine business being disposed of, the report of the council for the year 1911 was adopted. During the year 1911 the council held six meetings of council, which were well attended. In addition, three general meetings were held, to which all members, associates, and students were invited. We regret that these general meetings were not better attended. During the year we received three resignations. It is therefore strongly urged on our junior members that these associates who are qualified for full membership should seek to be enrolled as "members," and take their proper place and standing in the ranks of the profession. At no time in the history of our society has there been greater need, in the interest of the junior members, for co-operation and combining effort, with a view to improving the conditions of architectural practice, particularly in the interests of the younger members of the profession. Every week brings reports of the actions of the numerous district and urban councils who are carrying out or proposing to carry out small building schemes for "labourers' and workmen's dwellings, and larger schemes for

technical and municipal buildings and schools. In the great majority of cases the architectural work in connection with these schemes is entrusted to read surveyors, builders' clerks, and county surveyors' assistants, or others equally unqualified and incompetent in carrying out the duties of architect. The Board of Works and other controlling Government bodies have sanctioned and approved of such incompetent persons as being employed, thus frustrating the purposes and intentions of those who originally framed the provisions of the Labourers' Act. The results of such policy on the part of the Local Government Board are to be read in the report of badly-designed and badly built houses, necessitating an excessive annual outlay in repairs or reconstructions. With such warnings in view, we find that during this year several rural and urban district councils have rescinded previous resolutions, and have appointed as architects assistant county surveyors, who had already accepted office on conditions that they should not be devoted to their duties as surveyors. Such appointments are remunerated at rates that would be a positive loss to any qualified person who would faithfully and conscientiously carry out the duties attached to these appointments. The Housing of the Working Classes Bill has passed Parliament, and will, in due course, result in a revision of the building by-laws in force in this city. Such by-laws will be likely to affect architectural practice and the interests of building owners. It is of extreme importance not only to architects, but to building owners, that competent consideration should be devoted to the framing of such by-laws which will have far-reaching results, either for good or evil, on the future progress, both architectural and commercial, of our city. We have been assured that your society will have the opportunity of considering the draft by-laws before the same are presented to the city council for final adoption. The matter of affiliation with the R.I.B.A. has been further pressed, and it is hoped that within a reasonable time this will be accomplished. The hon. treasurer, Mr. Houston, submitted a statement for the year, which showed that the society is in a satisfactory financial position. A discussion arose as to the best means of furthering the objects of the society, and some recommendations were made to that effect to the incoming council. Mr. McDonnell referred to the candidature of Mr. Gilliland for membership of city council, and proposed "That the society learn with pleasure of the candidature of W. J. Gilliland, F.R.I.B.A., for Victoria Ward, knowing, as it does, the attention and expert knowledge he will bring to further all the interests of the architectural profession, and should about to be entered into in municipal undertakings, and the society trusts that Mr. Gilliland will be successful in his candidature." The motion was seconded by Mr. Seaver and passed with acclamation. Ballot papers for officers for the coming year were then opened by the scrutineers, resulting in the election of officers as follows:—President, H. Seaver, B.E. Vice-president, J. J. McDonnell, J.P. Council, W. J. Gilliland, F.R.I.B.A.; R. M. Young, F.R.I.B.A.; and N. Fitzsimons, F.R.I.B.A. Associate members of council, T. W. Henry and J. Seeds. Auditors, F. H. Thomas and James Ferguson. Hon. treasurer, E. R. Kennedy, A.R.I.B.A. Hon. secretary, Thomas Houston, Kingscourt, Wellington place. The Corresponding Committee of Derry Architects to elect two members of council in addition to above.

EARLY SLAVONIC DWELLINGS.—Mr. C. F. Innocent, A.R.I.B.A., lectured before the Sheffield Society of Architects and Surveyors on the 11th inst. upon "The Slavic and Slavonic Peoples." The lecture, which has been very thoroughly studied by Herr K. Rhamm, to a review of whose book, "Die Altslawische Wohnung," the lecturer devoted the greater part of his remarks. The lecturer described the countries inhabited by the Slavs, the bulk of whom were to be found in Russia, the East, and Eastern Europe. The Slavs were to-day the most numerous race in

Europe, and, being a very conservative people, there was no doubt that the dwellings of the race to-day were similar to those of past ages. The lecturer described the usual arrangement, the smaller houses consisting of one room with, perhaps, a vestibule. Larger houses had a store or further room on the opposite side of the vestibule. The living room contained a close stove or oven, and across the living-room there was a raised stage or sleeping-place. The materials and methods of construction of the buildings were described and compared with those in use in this country, and the lecturer suggested that many points connected with early buildings in this country were deserving of the thorough and systematic study which Herr Rhamm had given to those of the Slavonic race. Mr. J. B. Mitchell Withers, president, occupied the chair. A vote of thanks was accorded to the lecturer on the proposition of Mr. T. Winder, seconded by Mr. W. J. Hale.

Correspondence.

THE POLICY OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR.—I am afraid that a reader of your number published on January 12 might think that the reason the members of the R.I.B.A. refused to sanction the scheme for amalgamation with the Society of Architects was because they did not approve the draft Bill for Registration.

A verbatim report in the Journal will shortly be sent to every member, and then there will be no more of these several other reasons which influenced members to reject the scheme by an enormous majority. This will also be made clear by the conversation at the end of the meeting. The proposer and seconder of the amendment were asked if they limited the reference to the one point of the draft Bill, and the answer was that it must be referred back to every point.

I feel sure you would not like a false impression to be created in the minds of your readers, and, consequently, I ask you to kindly publish this letter.—Yours obediently,
SIDNEY PERKS, F.R.I.B.A., F.S.A.

The Guildhall, E.C.

[Mr. Perks may know more of the intentions of the Institute with regard to future publication of the proceedings at the meeting than I do. The brief report that has been published seems to us adequate. Publication of some of the remarks made, even those by Mr. Perks himself, might hardly promote the outcome all reasonable men still hope for.—Ed.]

"WRIT SCASCATIC"

SIR,—I should be glad if you would kindly give me the plans, sections, elevations, specifications, and a few details of a house to cost about £1,500. For these particulars I should be greatly obliged, for I am content that the winner of your "Guinea Game" would like to feel that he was worthy of his prize, and likewise your valuable paper would be a great "boon" to many a poor man who happened to be building a house, but could not afford to pay the exorbitant fees of an architect, yet, on the other hand, would not miss fourpence and the penny postage to you, for it is surprising how much information may be obtained for this amount.—I am, etc.,

STRANGE BUT TRUE.

[Our correspondent's little jibe is not altogether undeserved. "Intercommunication" was meant to facilitate the fraternal solution of little difficulties all meet with. Much the experience of others help to overcome, not to teach architects their business, nor to amuse amateurs or Mr. Buggins to expense with their services. Querists may take the hint. For ourselves, we have, we confess, some doubts whether our "Guinea week" has always been profitably spent, and whether we might not more advantageously use it otherwise, and leave "Intercommunication" as of old, to the generosity of readers.—Ed.]

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's decision is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this size must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in the form of no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Edgar A. Rogers, Town Hall, East Ham, E.

QUESTIONS.

[19074].—NOTICE STONEWORK.—Given cube yards without beds and joints given separate? The above has just come to my notice, and I cannot find answer in the stone trade, the answer is well known it given otherwise than in cube feet.—J. T. Wright.

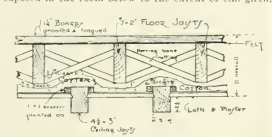
[19075].—COURT FOR LIGHT.—When building a court in a domestic building to light habitable rooms, so as to comply with the London Building Act, 1894, can advantage be taken of an adjoining court, belonging to a next-door owner, thereby building a smaller court than would otherwise be necessary?—Verulam.

[19076].—WEATHERPROOFING OLD CHURCH TOWER.—I should be much obliged if any readers could, from their experience, recommend a satisfactory method for weathering out of two old church towers through which at present water comes in great quantities, the insides of the walls streaming with water. One is made of surface granite, which is distinctly porous; is there a satisfactory water-proofing liquid? The other is made of bad shaly stone, through which the water percolates, and rots the stone to such an extent that one can pick out the stone with one's fingers like rotten wood. This tower has, in olden times, been plastered over; but a few years ago the plaster was taken off, and the tower carefully pointed, for the sake of appearance. The roofs have been made waterproof in both cases.—R. W.

[19077].—FLAT FACTORY ROOF.—I shall be glad if any reader will give the best method of construction for the flat roof of a factory, and the best materials for covering same. The factory is about 60 ft. wide, divided into three equal longitudinal bays by two rows of columns.—Young Architect.

REPLIES.

[19071].—SOUNDPROOF.—The floor proposed by "S.S." is not by any means soundproof. The joints are the conductors of sound, and these are exposed in the room below to the extent of 5 in. girth.



being only insulated above by felt under floor-boards. Two superficial feet of sound-radiating surface is provided in every 3 ft. of joist throughout the floor, and the insulation between joists is so arranged as to render any ventilation of the timbers difficult. A design which can be relied upon as fulfilling all the conditions of a sound-resisting floor is sketched below, being completely insulated and self-ventilated. Solid strutting in lieu of herring-bone strutting would be a beneficial amendment if funds would allow. The appearance of the ceiling being as follows:—See similar in above sketch to the design submitted by "S.S."—Edgar A. Rogers, F.A.S.I.

[19072].—GARAGE FLOOR.—A suitable floor for the garage question would be as follows:—Unless the brick pillars are needed for purposes other than that of supporting the floor, they could conveniently be omitted. Also, an additional 4 in. of concrete, or extra bed of gravel, would be obtained by keeping the two main girders (see below) up 4 in., and the top flanges of transverse joists level with those of girders. The floor would be divided into three bays by 2 in. x 7 in. x 56 lb. R.S.J., spaced at 10 ft. 5 in. centres, having suitable bearings at each end, i.e., on girders and on pillars. Each one of these would bear a safe load of 19.2 tons. The intervening spaces to be bridged with 6 in. x 2 in. x 5 lb. R.S.J.s.

either resting directly on girders, or on pillars. Excepted above, and the concrete would be 4 in. deep, and the top flange on (above) level. The 70 in. span at a 2 ft. 5 in. centres. Spaces between to be filled in with concrete on the top of the floor. The floor to be 1 1/2 in. clean sharp sand, and 1/2 in. Thames ballast or broken sandstone; to be thoroughly rammed and wheeled about the joints, etc. The floor to be finished with granite or other suitable paving. A very little extra floor for this purpose is one floated with Portland cement and granite chippings 1 in. in thickness, and 1 in. S.T. Jags. Local, Station-road, Rognes, Sussex.

[19072].—GARAGE FLOOR.—In my opinion, the floor suggested by Mr. Gradwell is weak and somewhat flimsy. It is suggested that the floor be 25 ft. floor for the purpose. Fix four steel joists 10 in. x 10 in. over the 17 ft. span at equal distance apart, 10 in. by 10 in. is desired, if not more, and it is recommended that 10 in. joists, obviates the necessity for piers. The spaces to be spanned are now about 6 ft. wide between joists, and can be spanned cheaply with ferro-concrete to support the load, and to insure safety. Fix centering level with top flange of joists, lay on network of 1/2 in. diameter steel bars wired together, forming 4 in. mesh; give this a least overall width of flange both sides, and let it overlap, setting in other bays. Cover with 4 in. of concrete composed of 3 parts of cement, 1 part of sand, and 1 and 1/2 of Portland cement. Whilst in wet condition the network must be shaken up evenly through the concrete. Lay down 1 in. of concrete, and the concrete must be well rammed. Now cover with 2 in. thickness of iron concrete, and ram. Finally floor surface with 1 in. thickness of granolithic composed of 2 parts granite dust to 1 part Portland cement, and 3 parts water. See also "The Building News," 1907, Edgar A. Rogers, F.A.S.I., Engineer and Surveyor's Office, Town Hall, East Ham, E.

[19073].—CIRCULATING PIPES. Extensive filtration of water is caused by the organic matter in the water and the oxide of iron. As this is a domestic supply, every drop of water drawn off is replaced by fresh, thus doing away with the cause. A temporary remedy, which was suggested by a heating expert in a similar case, was to use pipes of larger diameter than necessary, and the forcing life of the pipes to clean out the pipes near the boiler as frequently as necessary. Now that the big cities and towns—such as Liverpool, Birmingham, Plymouth, Southampton, etc.—are going so far afield for their water, the difference in the nature of the source will have to be considered. Locally, by architects and others, to avoid costly methods of treatment, the use of material for the boilers, pipes, etc., in heating and domestic services.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

[19074].—CIRCULATING PIPES.—The only practical method (other than softening of the water) to prevent choking of the pipes in question, is by periodical scraping through with a wire brush. This method is adopted for boiler tubes. The pipes must be rearranged so that a scraping rod can be pushed through them, and the forcing life of the pipes. For this purpose, bends near the point of corrosion must be taken out, and straight pipes and tees substituted. These must be provided with inspection caps to full diameter of pipes, screwed in convenient points for cleaning rods to enter and corrosion to come out. Probably these points will have to be at opposite sides of the pipe, and a cap or cap or under dresser, as the case may be. A convenient stop-cock should be inserted in the supply pipe, and a draw-off cock at lowest point in hot-water circuit.—Edgar A. Rogers, F.A.S.I.

Mr. Wm. F. Barry, county surveyor, of Monaghan, has been appointed county surveyor of Wexford at a salary of £200 per annum.

Sir Edward Elgar, O.M., has just purchased the freehold detached mansion, 42, Vetherall-gardens, Hampstead. The house, designed by Mr. Norman Shaw, was for many years held by Mr. Edwin Long, R.A., and has a large studio or music room. His name, formerly Kelston, has been changed to Severn House.

Rival town-planning schemes are proposed for the area between Inverkeithing burgh boundary and the extended boundary of Dunfermline. At the last meeting of Fife County Council there was submitted a notice of application for a town planning scheme by Dunfermline to the Local Government Board for Scotland for authority to prepare a town-planning scheme for (inter alia) an area comprising part of that administered by Dunfermline District Committee. The meeting of Fife County Council at which a similar notice was given by Inverkeithing. Both schemes cover the area between the two burghs.

An animated and acrimonious discussion took place at a meeting of the corporation of Southborough on Saturday, when a resolution was submitted that the salary of Mr. H. W. Smith, the borough surveyor, be increased from £475 to £600 a year. Mr. Smith has decided to apply for the vacant surveyorship of Southport, where the commencing salary is £600, rising to £800 and it was argued that he would be better off should he be transferred his services. Strong opposition to the proposal was shown but when the vote was taken, after a two-hour discussion, the increase was carried by 13 votes to 8.

LEGAL INTELLIGENCE.

MEASEY v. BISHOP OF NORWICH. In the King's Bench Division, on Monday and Tuesday, Mr. Justice Bray and a common jury heard an action brought by Frederick Measey, hot-water fitter, against the Bishop of Norwich to recover damages for personal injuries alleged to have been suffered through an accident at Norwich Palace due to the negligence of the defendant. The plaintiff's case was that in July last he was in the employment of a firm of engineers carrying on business in Walsingham, E., who were engaged to improve the heating arrangements at the Bishop's Palace at Norwich. Plaintiff went to the palace to assist in carrying out the work, and on July 10 he fell into a trench dug in one of the corridors by the defendant, Mr. Smith for the purpose of the hot-water installation, suffering a compound fracture of the left leg. The plaintiff alleged the defendant was guilty of negligence in allowing the trench to be insecurely covered. His counsel, Mr. Gibbons, quoted "Pickard v. Smith" to show that it did not matter whether the bishop delegated the work to the hot-water engineer or the builder. For the defence, evidence was given by Mr. Sankey, K.C., who cited "Murray v. Currie" and "Indermar v. Dams", that there was no negligence on the part of the defendant, and that as the plaintiff had received compensation under the Workmen's Compensation Act, he was not entitled to recover damages against the defendant. In support of his contention he referred to "Page v. Burdwell" and "Huckle v. London County Council." Mr. Justice Bray held that there was no evidence of negligence against the defendant to go to the jury, and gave judgment for the defendant, with costs.

The death is announced, at the age of fifty-five, of Mr. John Tomlinson, secretary of the Manchester and Salford Building Trade Employers' Association, and of the Preston Building Trades Employers' Association.

The death took place at Hill's Court Lodge, Exeter, on Wednesday week, of Mr. William Granger, M.I.C.E. Deceased, who was fifty-six years of age, was the engineer of the L. and S.W. Railway, for the south-western district, extending from Salisbury to Padstow and Wadebridge.

A memorial to the Rev. T. H. Elliott, formerly vicar of the parish, has been dedicated at Totnes Parish Church. The memorial, executed by Mr. F. Horn, of Totnes, was designed by Mr. C. R. Baker King, A.R.I.B.A., architect, Westminster. In plan it is octagonal, and it is of granite, to harmonise with the church walls. The shaft carries a Maltese cross.

A meeting of the Northern Architectural Association was held at Higham Place, Newcastle-on-Tyne, on the 10th inst. The speaker was the chairman of the president, Mr. Charles W. B. Smith, an interesting lecture on "Old Newcastle by Old Newcastle Artists" was delivered by Mr. T. M. Claque, of Newcastle, the lecture being illustrated by over 150 slides.

A paper describing a fire-protection system in a London brewery was read before the Institute of Brewing by Mr. H. E. Field on Monday. The system of protection described consists of a stationary pump connected with twenty-six hydrants placed throughout the brewery premises, the pump having a capacity of 550 gallons a minute, and the necessary head of steam being kept up day and night.

For the purpose of supervising the roads, the Hampshire County Council have sanctioned the appointment of four divisional road-surveyors, and the following appointments have been made:—South-eastern division, Mr. Joseph S. Hall, assistant surveyor, Worcester Council; south-western division, Mr. G. H. C. Mottershead, inspector of main roads, Warwickshire County Council; north-eastern division, Mr. J. A. Manning, assistant and county surveyor, Cornwall; and north-western division, Mr. W. J. Ester, surveyor to the South Stomacham District Council.

At a recent meeting of the Newark-on-Trent Education Committee a question was asked why public tenders were not invited for the building of a storeroom, instead of asking two or three firms to submit prices. The mayor explained that he had invited tenders, but they had increased the outlay. The clerk, Mr. Osborn, had drawn up the plans and specifications, and so saved the two guineas surveyor's fee. The matter then dropped. It remains to be seen whether, on some future occasion, all will be made to increase the clerk's salary on the ground that he also acts as architect and surveyor, to the great saving of the ratepayers' pockets.

Our Office Table.

At the last meeting of the city council of Glasgow a letter was read from the Glasgow Institute of Architects, complaining that architectural work in connection with public buildings undertaken by the corporation was being carried out by the city engineer's department. In the institute's view it was not in the best interests of the city, either in the matter of economy or good design, that work which was purely architectural and of a public nature should be carried out by an official who was not a trained architect. The protest was sent in particular with reference to the reconstruction of the Maritime Buildings and the extension of the municipal buildings being placed in the hands of the city engineer. A minute bearing on the extension of the city chambers gave rise to a long discussion. The special sub-committee proposed that the plans for the extension should be thrown open to competition, but the parent committee, at a subsequent meeting, overturned that proposal, and recommended the council to give power further to consider plans by the city engineer for the work, at an estimated cost of £127,000; under this revised scheme the council would be obliged to erect the height on the John-street and Cochrane-street sides of the existing premises. In the discussion the question of whether there should be competition was the chief subject debated. River Baillie Stewart, supporting the recommendation of the special committee, recommended that the city engineer had on his staff men who were members of the Royal Institute of British Architects. Objection was taken by several speakers that the city engineer's plans had not been exhibited, and ultimately the minutes were remitted back for further consideration.

The county council of Northamptonshire were recently desirous of making an improvement at Yardley Hastings by constructing a by-pass road, and for this purpose had to acquire an acre of land. It belonged to two owners, one of whom, the Marquis of Northampton, generously gave to the council the half of the land, and the other half was sold to the owner of the other half acre the council offered £100; they were met with a demand for £300. Arbitration was agreed upon, and the referee, Mr. C. E. Thorpe, of Northampton, has just delivered his award, under which the council is to pay £207 10s., together with costs. The scarcity of agricultural land at £415 an acre is decidedly good business.

Mr. Cyril Davenport read a paper, illustrated by lantern views, on "Illuminated Manuscripts" before the Royal Society of Arts on Wednesday evening. Sir Walter de la Roche, director of the National Gallery of Ireland, occupied the chair. The illuminated manuscripts which formed the foundation of the European manuscripts are Egyptian, and some of them are beautifully illuminated, or ornamented with pictures. Until the 2nd century A.D. papyrus remained the principal material upon which writings were made; but at that time, when a scarcity of papyrus occurred, and Eumenes II., King of Pergamum, introduced vellum, prepared from calf-skin, as a substitute. Vellum quickly superseded the brittle fibre of the Nile reed, and became, as it still remains, the ideal material for the illumination of books. In the 4th century Emperor Constantine went to Byzantium, and the great early epoch of Christian art began shortly afterwards. It was, primarily, a religious movement, and in some sort a reaction against the Classicism of Rome. The Byzantine School was pictorial, the Celtic and the Insular. For several centuries Irish scribes and illuminators produced magnificent manuscripts, a few of which still exist. English work from the 8th to the 12th centuries shows Byzantine and Celtic feeling, combined with other influences. Anglo-Saxon work is worthy for the curious outlining, and the peculiar attitudes of the figures. In the 10th century there was a great outpour of beautiful work, mainly coming from Winchester, Westminster, St. Albans, and

Exeter. In the 12th century the work generally tended to become smaller and more delicate. In the 14th century the highest point of excellence in English illumination was reached. The 15th century saw the decline and practically the end of the art of the English illuminators, and later work of the 16th and 17th centuries was the work of foreign artists, mainly Netherlands.

A paper on "Colour Discrimination by Artificial Light" was read by Mr. Thomas E. Ritchie before the Illuminating Engineering Society on Tuesday evening. Mr. Ritchie showed that it was within common experience that colours appeared very much to the eye when viewed by artificial light, and explained, partly by photographs of coloured ribbons under the influence of different lights and partly by descriptions of the colours as they appeared to the eye, how eleven different colours behaved in the various conditions. He advocated the use of a colour-photometer, and a discussion followed, in the course of which Mr. A. P. Trotter described a series of experiments he was undertaking to discover a screen that would enable an artificial illuminant to give a light comparable with daylight, the means he employed being a mixture of glass and opal. Mr. Trotter showed an artificial daylight, making use of a newly-discovered fixed dye as a screen. Mr. Eck exhibited a picture that had been painted in sections, partly by daylight and partly by the artificial light of the inverted arc lamp; the colours showed a perfect fidelity to nature. A comparison was stated that in the daylight under which London suffered red predominated to such an extent that it was impossible to see the most delicate blues. The suggestion was made that the Illuminating Engineering Society would do a valuable work by establishing a standard of daylight.

The Egypt Exploration Fund is, says a *Times* article, at present continuing its work at Abydos for the fourth season. Excavations are in progress, under the direction of Mr. T. E. Peet, in the great cemeteries. Tombs have been opened of all periods, from the days of the first dynasty to those of the Roman period. Of the latter a magnificent example was found, consisting of a vaulted chamber, some 20ft. in length, built of mud bricks, and containing twelve coffins of limestone, each with its carefully-sealed cover, enclosing a mummy. On the arrival of the director of the excavations, Mr. Naville, the scope of the work will be extended, and the new modern developments of building, underground temple of Menephtah, will be begun.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Pocket Book for 1912 (London: Crosby Lockwood and Son, 7, Stationers' Hall-court, E.C.; 4s.) as usual enhances its undoubted value to all users by its prompt and early publication. Its scope is wide, and its facts and figures dependable. The newer modern developments of building find adequate attention, and the wages table has been thoroughly revised and enlarged. Of all similar publications we find ourselves more often in reliance on "Lockwood's" than on any other, and can confidently recommend it to every reader.

Economical sewer sections have been the subject of study by Mr. Alberto Schreiner, assistant engineer-in-charge, of the Bureau of Sewers, Borough of Queens, New York City. The experience in that office has led to the general conclusion that it is desirable, from the standpoint of low cost and ease of construction, to use vitrified pipe on all lines up to 24in. in diameter. For sewers having diameters between 24in. and 4ft., plain concrete is believed to be the most economical type of construction; but for diameters greater than 4ft. it has been found that reinforced concrete may be used to best advantage.

At the Llanrwst Urban Council meeting of Friday night, Mr. Albert Hughes drew attention to the cutting of a large portion of timber from the Fwyddel forest, which on the slopes of the Snowdonian range, ruin the whole length of Conway Valley. He added that this beautiful timber was

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| Red Deals: Archangel 1st quality | | 20 00 | 21 0 0 |
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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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PRIZE DESIGNS AND DRAWINGS AT THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual display of students' works in competition for the medals and prizes offered by the Institute was opened on Monday evening last, and will remain on view till February 5 next, free to the public, in the galleries at 9, Conduit-street, W. The Soane Medallion subject this year was a Guildhall to seat 1,200, with galleries, a smaller hall to seat 400, a banquetting-chamber for 200, and a suite of reception-rooms, committee-rooms, kitchen, and the rest for administrative accommodation. The building to be monumental in character, and to be in a public park set back 100ft. from the road. There were thirteen competitors, and most of the schemes may be said to have more or less seriously dealt with the problem. It was certainly a good competition; but not one of the thirteen competitors has produced a scheme quite worthy of the Soane Medallion and one hundred pounds, so the Council, not wishing to withhold the prize, has decided to award the money in equal shares—for three months' travel, instead of six—to the authors of designs marked "Ante" and "Circle City" (Mr. Piet De Jong, Albert-street, Regent's Park, and Mr. W. Friskin, 182, Kensington Park-road, respectively). We quite endorse the adjudication of the committee, though we are not surprised to learn that the decision was only arrived at after protracted consideration. The subject has been so diversely handled, and so many serious mistakes made, that the balance of faults and merits must have been a nice problem.

"Circle City" occupies a long frontage with a range of buildings backed on plan by a domed hall, surrounded by crush-halls leading out of a balcony corridor on the first floor, and on the ground floor below there are cloakrooms and entrance-halls, divided by four intermediate staircases, which, however, have no direct exits in case of emergency. In front of the guildhall, and divided from it by a colonnade, is a very capacious assembly-hall, opening into an entrance vestibule. Stairs at one end branch right and left, leading to a reception-hall, with a large well-opening in the midst of it, to light the floor below, and a domed ceiling occurs above. Overlooking the frontage, a suite of reception-rooms leading out of the before-named reception-hall, which has no connection with the guildhall, excepting to the gallery devoted to private boxes, facing the orchestra gallery. No con-

veniences are available for the private-box-holders, save by going through the grand reception apartments. The small hall is located to the right, and the banquet-room to the left. The former has corridors on each side, and on one side only of the latter, with a colonnade to match on the other side, forming an aisle leading to a small lavatory. This, as a complementary feature in balancing arrangements, has a "wash-up" place at the end of the service corridor, the service-room being at the other end, alongside of the guildhall, with a range of lifts to the kitchen. A restaurant of indifferent shape occurs in a similar position on the far side of the guildhall. Artists' rooms occupy the extreme end of the smaller hall wing, with conveniences for both sexes. These are wanting to the big assembly-hall orchestra platform. To the rear of this stage-space, and facing the park, is a huge niche with a group of statuary quite out of scale with the building, while in the perspective it distorts the contour of the dome so badly as to give the impression at first sight of only half a dome being intended. The body of the hall is colonnaded, and to the centre of the front façade is another Tuscan Order colonnade rising on a podium pierced by five segmental-headed doorways—the main entrance from George V.-avenue. The lunettes lighting the guildhall and piercing the base of the cupolas do not show on the outside, being hidden by parapets rising above the external walling colonnaded round the main building, as already mentioned. No lantern crowns the dome, the scuff of which is coffered with bold rib-like surfaces panelled more largely to give a structural effect of strength, to which we take little exception, though purists might do so, as the lunettes alone seem to justify such a special treatment, the walls below being simply continuous and unbroken by piers, suggesting the emphasis of ribs. The committee-rooms are relegated to an attic over the frontispiece, and have no outlook save on to the "leads." The scheme is refined and good in detail, excellently drawn in the half-inch sheet, with crispness and feeling; but the front wings look incongruous with the domed hall, and are not helped by the perspective before alluded to. The factory seen in the distance scarcely furnishes a becoming adjunct to a monumental work of this character.

"Ante" (bracketed with "Circle City") sends a square guildhall, with statuary niches cutting off merely the angles. Four transepts provide for three galleries and the organ, with an orchestra tribune. A

large entrance-hall, divided into three bays by a double range of pilastered piers, has a fountain in the central compartment. Over this hall is a gallery for receptions; but three well-holes detract from its dignity and space, while the two stairways down from thence are set to the rear somewhat awkwardly, with wide steps, extending between the columns, forming an approach to a narrow half-space landing, where the staircase proper begins. Corridors extend on either side of the guildhall, and terminate by the flanks of the organ transept. The left wing is devoted to the banquetting-hall, and the suite of reception-rooms are placed in the right-hand wing. The gallery transepts open into these side corridors and into the reception cortils in the front—if we may employ that term. Four little areas for light intervene at the four cardinal points of the guildhall on plan, and serve to illuminate what are called "retiring"-spaces out of the rambling corridors on the ground floor, wastefully sacrificing space in the dark round about the auditorium. The small hall is below the banquetting-chamber, with a "foyer" and crush-hall at the foremost end, a reception-room for artists being placed at the rear. A circular café adjacent to the last-named balances an oval-shaped "lounge" on the other side of the orchestra entry in the plan, which has a recessed "circle," or vast portal, with a colonnade projecting into the park in a palatial sort of way, out of scale with the rest, and meaningless really in purpose. The conveniences for the chorus are inadequate and segmental in form, squeezed in, without air and light. No lavatory accommodation seems to be provided in connection with the committee-rooms or retiring-rooms. The guildhall appears to be too subordinated to its sumptuous surrounding attachments. Rooms for the chorus occur on the top floor, flanking a gallery for the orchestra which is situated immediately over the organ. The "toilets" in the basement and enormous cloakrooms adjacent are devoid of light and difficult of access. The guildhall is lighted by lunettes in the ends of the three transepts, and seem hardly sufficient. Architecturally, this design by Mr. de Jong is unequal. The Caryatides, set on tall pedestal piers, to emphasise the façade, supports a projecting cornice and rich entablature, give a stilted effect, particularly as exhibited in perspective. In the detail drawing the parts are ingeniously set out to obviate this obvious certainty in execution. The terminating pavilions of the elevations look pinched and incon-

sequential just where strength and breadth are imperative. The attic over the guildhall, masking the glazed dome skylight, has the effect of a tank, to speak plainly. These remarks may appear severe, and yet not one of the other competitors can claim to have exceeded the merits of both "Circle City" and "Ante," though perhaps in the matter of draughtsmanship two or three have done better.

What, after all, is the use of elaborate drawings, if they only serve to confuse the competitor, and hinder him from grasping the fundamental essentials of capable building? After all, it is architectural expression in the executed building that alone makes fine architecture; and clever as a draughtsman may be, a really able conception depends upon something nobler and far different for its successful embodiment. It is pitiable to see so much wasted energy displayed in faking up deplorable poor designs, such as the residue of the schemes display.

"Sailing Ship" (device) placed next for a Certificate of Merit, is open to the same objections as the last, though the author, Mr. C. A. Harding, of Glasgow, is, no doubt, a most skilful delineator, who has worked out his scheme excellently, so far. The pity is that the proposal is inherently faulty, far too ambitious, and, in parts, abundantly wasteful, as in the vast engine-room in the basement. The whole conception is grandiose, and the built-up tower bears no relation to the purpose of the problem. The effect produced suggests a Late Classic Church, enclosed by civic surroundings, and the guildhall, thus shut in, looks as if it would be very dark. On entering the portico, the visitor reaches a colonnaded vestibule, out of which is a circular hall, with stairways branching right and left, and beyond this "staircase hall" is a further one, assigned to receptions, with duplicate stairs, presumably landing at the sides of the organ and platform recess in an awkward manner, and if this be so, quite out of harmony with so grand an approach from the reception place thirteen steps below. There are three other great vestibules on the ground-floor and capacious cloakrooms in addition to minor ones, with a robing-room of doubtful use, committee-room, also on the ground-floor, and a range of reception-rooms set on a segmental line of the frontage. The dining room and small hall are on the first floor.

"Vista," by Mr. Bertram Lisle, is placed also for a Certificate of Merit. He puts his hall parallel to the frontage, which is treated cleverly with a colonnade between, and pavilions which above mark the minor hall and banqueting-chamber. The single portal lacks importance, and leads into a vast corridor-vestibule, out of scale with the entry itself. The stairs facing the front door rise in the base of the tower, encumbering the approach to the guildhall behind it. The double-colonnaded portico, however, intended as the grand way to the assembly-hall, is situated at its end on the right, and thus the two main purposes of the establishment are divorced one from the other quite needlessly. The auditorium has big galleries at either end. The ladies' and gentlemen's cloakrooms are in the basement, but we are left to surmise how managed and how lit. The corridor continuous to the reception-rooms is designated a "reception hall," and it quite subordinates these apartments. The balcony entrances out of the portico to the concert-hall, to employ a more correct designation, are devoid of control and awkwardly set for efficient working, being really only fit for emergency exits. The elevations are

distinctly able, in the favoured mode of Renaissance, making a set which at first sight impresses the eye, and the lay-out is attractive as the result of thought and capable detail, suggesting a workmanlike scheme. We were a try to come to a contrary conclusion, owing to its lack of unity of purpose displayed.

"Experientia Docet" sends a built-up impossible proposal, towering in proportion for the sake of mere florid effect; but the details of this "Fancy Brand," somewhat Egyptian in origin, display refinement and study, though the ineffectively drawn fin-scale sheet does the work sparse justice. The plan is far too over-elaborated with columns.

"Sign of Black Fish" is cruciform in plan, with wings occupied by the smaller hall, banquet-room, offices, and the entrance. Four vestibules intervene very ingeniously with cramped "lavatories," and there are indifferent stairs. The design is bald Classic, unattractive in detail. "Dragon" sends foolishly rough drawings in pencil, the wall sections being red, and the shading-up in Reckitt's blue. Enormous corridors, and an unduly tall guildhall, having an attic lantern above, mark this design, handled with severity in the Classic mode. The hall rises over a pierced podium occupied with minor rooms in two floors, with restless effect and many skylights. "Oo Toroc" is a cruciform compact design comprehended by a square on the ground-floor, with transients above, and the guildhall being crowned by a dome supported by minarets at the corners, effectively displayed by a bird-eye view. This is generally a well-worked-out scheme. The reception spaces, other than the entrance-hall extension, are totally dark under the gallery, and more faults could be named. "Fraternity" is wasteful, with long, narrow, dark passages leading to a stupendous entrance-hall, with promenade absolutely devoid of light. The drawings are too good to be by a prentice hand, but the whole conception is overdone and out-of-the-way laborious, which is a pity.

THE TITE PRIZE.

Eleven designs for this Studentship are devoted to "The Central Courtyard of a Royal Exchange covered by a Roof." There can be no doubt whatever as to the premier design, and Mr. Louis de Soissons, of Beaufort Mansions, Chelsea, has secured his position on his merit, as shown by the drawings marked "Red Lion." The plan is oblong, with aisles round the covered-in courtyard, including a fountain at the end of the arena. A gallery extends round behind a lofty colonnade, carrying an enriched entablature and coffered ceiling, with middle skylight, simply and well treated on the flat. The segmental arched openings on the ground-floor are filled with iron grilles. The effect of the interior evidently is intended to be viewed from the gallery level. The style is French, excellently refined and detailed, likewise well-drawn.

"The Circle" (Mr. T. H. Chalkley, of Raymondsey) takes a certificate of merit with a beautifully wrought set of delineations, but his circular "yard," more like a Hall, has about a couple of dozen small, circular-shaped minor halls or appurtenances grouped round very ingeniously, but bewildering for Exchange facilities where men meet for business. "Dum Spiro Spero" follows the lines of the prize design, but his aisles would look too lofty, there being no gallery level. The sculpture is not shirked, and the detail is well put in. "Centres" has a round Hall, with a gallery set over an arcaded ground stage, designed well, with precise and accurate drawings, which, if a trifle hard compared with some of the others, do the author

credit. "Gregarah" touches-in colour well, and has broad architectural ideals above the grasp of some of his fellows, his failure, we think, being that he has conceived a hall rather than a covered courtyard. His aisles are too big and dark below stairs, and the stairs are ill-considered and accidental. "Black Cat" fails from the same hall notion in lieu of a courtyard, though he has abilities which should inspire him to try again. "Hampton Pallholders" better presumes a court by the sort of external embellishment to his mural treatment, which in its parts is too small. The hall effect predominates.

THE INSTITUTE SILVER MEDAL FOR DRAWINGS.

Five competed, and "Zeta" (Mr. A. E. Maxwell, of Chelsea) wins out and away by his thoroughly practical and well-studied set of drawings of Compton Wynnyates, Warwickshire, the famous and beautiful brick and timber Tudor mansion, of which, originally, Sir Wm. Compton was the architect in 1520. The plans are chronologically coloured, so that one may read the dates at a glance of the several additions to the house, and the Queen Anne extensions. The details are excellently put in, all by pencil, and tinted here and there, with details of portions at large. The series is entirely good, but any reproduction satisfactorily to small scale is very doubtful. Mr. W. M. Keesey and Mr. Arthur B. Allen won Certificates of Merit for capital sets. The church of Santo Spirito, Florence, by Mr. Keesey, and the Lantern Octagon at Ely by Mr. Allen are both extremely good.

THE PUGIN STUDENTSHIP.

This Silver Medal and £10 attracted nine competitors, five of whom were rewarded deservedly. Mr. James Macgregor, of Hampstead, wins "The Pugin" well in the face of strong draughtsmen. His work is certainly the best. Holyrood Chapel, St. Monan's Church, Fife, Sherborne Abbey, Beverley Minster (transept and stairs), Abbot's House, Muchelney, and Queen's Camel Church, Somerset, show sufficiently the varied types he has measured and sketched. Messrs. C. Peake Anderson, W. J. P. Jones, J. R. Leathart, and R. Norman Mackellar win certificates of equal value, and they are to be congratulated.

The Arthur Cates prize has been won entirely successfully by Mr. J. B. F. Cowper, whose diverse styles of subjects depicted by his drawings show how well he covered the ground of study set before him.

The Grissell Gold Medal is justly accorded to Mr. Thos. Braddock, of Wimbledon, for the Exhibition Building in iron and concrete, marked by motto "MCM XII." An octagonal picture-gallery, flanked by two oblong ones, may be rather reminiscent of the Great White City, perhaps due to the domed pavilion over the entrance; but it is a good set of drawings, and well worked out. "Fer dans Blanc Mange" is the best of the other three schemes submitted.

The Owen Jones Prize is given to Mr. Noel H. Leaver, whose coloured studies are beautifully executed. They are chiefly from Italy, and the mosaic study caused much comment, though we can but feel such elaboration is hardly needed really, and we fail to realise to what end, if adopted, it is actually to lead—much as industry and adroitness may be admired.

A new school of Science and Technology has been opened in Burton-on-Trent. It is adjacent the public library in Union-street, and provides accommodation for students in painting, plumbing, and decorating. The total outlay was £4,000.

REINFORCED-CONCRETE BUILDINGS.

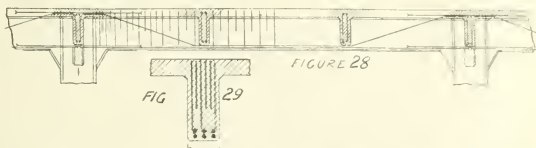
By Wm. G. SHIPWRIGHT, Lic.R.I.B.A.,
M.C.I., and Chartered Building Surveyor
(by Exam).

ORCHESTRELLE FACTORY STORES AND
OFFICES AT HAYES.—(Continued.)

(Walter Cave, F.R.I.B.A., Architect.)

The plan, Fig. 4., given in last issue shows the general arrangement of beams and columns adopted in constructing the small block comprising the Music Roll Factory, of which Fig. 2 is the general view. The scheme of construction has been varied somewhat from that adopted in the Pianola Factory, described in detail in the last number, and a central line of rectangular columns support the main beams in lieu of the dual range employed in the former instance. The beams, having a span of 24ft., are, however, constructed on similar lines to those in the Orchestrelle Warehouse. One of the most interesting, illustrating the principle of continuous beam-construction, is shown in Figs. 28 and 29. These beams, which are 31in. deep and 12in. wide, have six heavy tension-rods in the central 10ft. of the 24ft. span between the columns, with stirrup-hangers at 6in. intervals. The three rods comprising the upper row are turned diagonally up into the compression area, split and forked at the ends, and securely wired over the supporting columns, thereby securely linking up the tensorial reinforcement in the centre of the span with that above the columns. The distance between the hangers is gradually decreased to a minimum of 3in. above the supports by way of additional provision for the increasing shearing stress. Fig. 29 shows an enlarged section taken at the centre of the span. The secondary beams shown in section on Fig. 29 have in this case a span of 23ft., so that each column has to support a floor area of nearly 25ft. square, making a total of 625 superficial feet, which, calculated on a basis superimposed load of 7cwt. per foot super., produces a load of 125 tons on account of each floor, and about 60 tons from the roof, making a total of over 300 tons on the foundation.

Under these circumstances, this ranks probably as one of the most heavily-stressed pieces of construction in ordinary warehouse work erected in reinforced concrete, and the type of column provided



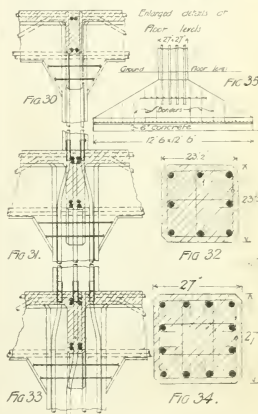
floor column is 27in. square, provided with twelve rods, linked and cross-linked at 6in. intervals in the manner indicated in cross-section (Fig. 34). The foundation, which is calculated on a safe loading on the gravel bottom of 2½ tons per foot super., in common with all the foundation-work, is shown in Fig. 35. A total superficial area is secured at the base of 150ft., and in a depth of 4ft.; two lattices of rods are disposed respectively at depths of 18in. and 3ft., with vertical hangers the full depth of the foundation. A preliminary bed of 8 to 1 concrete has been provided in a similar manner to the stanchions in the Orchestrelle Factory to secure a good bed for the foundation proper.

A special drying-room has been constructed for the purpose of seasoning the wood employed in the Orchestrelle Company's pianoforte manufactures. The principle of the system consists in the circulation of heated air through the chamber shown in the plan (Fig. 36), the moisture being removed from the air extracted from the chamber in the process of circulation, and the dried air reintroduced. The chamber is divided into three separate sections, each provided with an inlet and outlet apparatus worked from a central system.

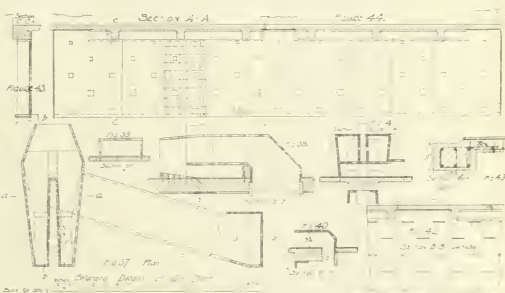
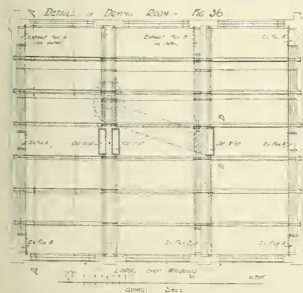
The series of inlet-shafts are arranged in the centre of the chamber in the position shown in the plan, and supplied by means of the main trunk above the chambers shown by hatched portion in Fig. 36, and in detail Figs. 37 and 38. This trunk is formed in 3in. of concrete and thin lattice-rods, this method being the most applicable to the forms required. The main trunk supplies three branches, each measuring 4ft. by 1ft., shown in the details Figs. 39, 40, and 41, and the whole work, with the numerous angles and junctions, has been very satisfactorily executed in the manner indicated, and has stood

exposed into the chamber being narrower at the upper end, and widening at the lower, to secure an equable distribution of air.

Two of the three exhaust-shafts (Figs. 43 and 44), which also traverse the whole



width of the chamber, are constructed on either outer wall, and the remaining one is attached to the right-hand division. These are formed in the manner shown in Section AA, a cross-section through the shaft being shown in Fig. 43. The apertures, which in this case are square in form, are also reduced in size in the upper



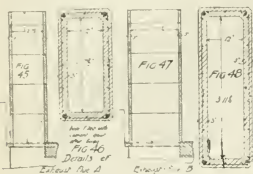
is shown in detail in Figs. 30 to 34. The upper section, supporting the roof (Fig. 30), is 12in. square, with four large reinforcing-bars. The section below (Figs. 31 and 32), taking the second floor and roof, is 23in. square, and has eight large, closely-linked rods; whilst the ground-

extremely high temperatures without any cracking or other detrimental effects. Each of the three branch inlet-trunks supplies a separate shaft, traversing the whole width of the room, constructed in the form shown in Section BB, Fig. 42. The slits through which the heated air is

part of the shaft. Three exhaust flues, 2ft. 7½in. by 12in., are provided at the top of the shafts (Figs. 43 and 44) and two flues, 2ft. 11½in. by 12in., shown in detail 47 and 48, are provided for the upper shaft.

It will be seen from these details that

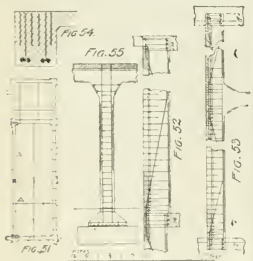
the flues are formed in 3in. of concrete, with thin lattice-rod reinforcement, the horizontals of which are linked and split at the ends, the angles being strengthened by means of slouter rods fitted loosely into holes left in the concrete, and subsequently filled with a neat cement grout, fixing a method which allows for the slight contraction of the concrete in setting, and obviates in a large measure the risks of cracking attendant upon variable factors of expansion.



sion in steel and concrete under widely-differing temperatures. The whole of this piece of construction is ingenious and effective, and the reinforcement, latticed practically throughout, has secured immunity from cracking in the thin concrete construction.

The method employed to obtain homogeneous construction between the lintel and the floor (shown in Fig. 49) is interesting. The longitudinal rods forming the lintel reinforcement are linked together vertically in pairs, and the lower rods of the ceiling reinforcement are passed round the whole set, together with the additional binding-rods marked "X" on detail.

Several good examples of construction are to be found in the engine-house, a small portion of which is shown in the plan



(Fig. 51). The main beam, "A," which has a span of 20ft., is shown in Fig. 53. Two pair of tension-rods are provided; the upper pair, passing across the top of the column, take up the changing stress occurring in a continuous beam. Fig. 52 shows another type of continuous beam with a cross-beam intersecting at right angles at the point of support above the column, the crossing rods being securely linked together with locking-stirrups.

The loading adopted for the calculations of the Orchestral block, given in the last issue, is 12wt. per foot square, whilst the Music Factory has been designed on a basis of 4wt. The floors throughout are reinforced with thin lattice of rods, with cross-ties, in the position shown on the plan. The basic loading for the roof was 12wt. in situ.

Very special care was taken with concrete, which was a 5 to 1 (3 shingle, 2 sand,

and 1 cement) throughout. No joints in floor reinforcement were allowed within 2ft. 6in. of any main beams, and the ends and joints of all rods were lapped, wire-bound, and thoroughly secured. The great essentials which alone make reinforced-concrete construction a success—good concrete rendered thoroughly homogeneous with well-placed steel reinforcement, and scrupulous care in securing the best workmanship—has been appreciated to the full. One of the largest schemes of its type, it comprises some specially massive examples provided to carry unusually heavy loading across wide spans, which give the rooms a remarkable freedom from obstruction, and clear, brilliant lighting, required for the special purposes for which the factory is erected. The drying-room is remarkable, being, I believe, the only one of its class constructed in this country and for the manner in which the thin partitions and flue-casings have been successfully built in reinforced concrete.

The scheme of construction was designed throughout by Mr. E. P. Wells, and erected by Stuart's Granolithic Company. Messrs. W. F. Fryer and Co. were the builders, and Mr. Compert the clerk of works.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The sixth fortnightly meeting of the present session of the Royal Institute of British Architects was held on Monday evening at 9, Conduit-street, W. The chair was occupied by the President, Mr. Leonard Stokes, and there was a crowded attendance of members, students, and friends, including many ladies. The hon. secretary, Mr. H. J. Bloomfield, announced the decease of Sir John Bloomfield, of Liverpool, who had been a Fellow since 1888, and a member of the council of the Liverpool Architectural Society.

COLOR-DECORATION.

Two papers on this subject were read, the one treating upon it from the painter's viewpoint (by Sir Alfred East, A.R.A.), the other regarding it from the architect's side (by Mr. Edgar Wood, F.R.I.B.A.).

Sir Alfred East in his paper remarked that the architect who works within the limit marked out for him by local conditions and succeeds in a stronger artistic position than he who, having so large a choice, fails by being too generous. It is surely a greater thing to rouse the feeling of absolute satisfaction by working within the lines that are imperative, and to succeed within those lines, than to ignore them. Still less is decoration governed by its conditions, and still more does this great question rest in the hands of the architect who takes upon himself a further and greater responsibility. We have examples of work done by artists who were foreign to the sentiment of the people in whose midst the building had been erected, and that the work so done does not, and cannot, embody either the particular and personal feeling of the architect or carry on the national artistic spirit. The architect, like the painter or poet, expresses an idea in a manner which has been formed by his education and environment; and as no practice of technique can be of any particular nationality, it is its application whereby it is used to express the thought and feeling of the man; it is in that application that art is national. It is interesting to note any building which thoroughly expresses the purpose of its existence. If it is embellished and decorated so that the decoration is the expression of its own time and environment as much as the building itself, it adds to the sense of satisfaction that the building is a completed work; it would convey to one the idea that the same mental outlook pervaded the whole, and that the accomplishment, as a whole, was eminently satisfactory. The architect should be responsible for the absolute completion of any public building, and

it is unfair to criticise him if some local authority assumes the responsibility of its decoration. We know the difficulties which surround this question. It would be a great step on the way to obtain a perfect and completed scheme if the architect and the painter were brought into more intimate contact, and, by the interchange of ideas, to help each other to understand the peculiar claims of their individual crafts. I would not claim that the architect should be necessarily instructed in the technical qualities of the various methods of painting; nor, if it be expected that the painter should make himself acquainted with the constructive side of architecture; but a knowledge of each of their aims should be mutually understood. It is to be accepted that the sincere architect desires this mutual understanding. The architect should feel that the great traditions of architecture he has received should not be avoided or abused—that he must work in the spirit of the traditions, and adapt them to the requirements of his own purpose. This is more important to him than it is to the painter, for the painter has not committed himself in so large a measure in such imperishable materials as the architect. It is satisfactory to see that during the last generation the architect has taken the sculptor more thoroughly into his confidence, and the same confidence should be extended to the painter, for the place of the mural painting could have been considered by the architect in the creation of his plan as much as that of the sculptor; neither is required for the actual structural qualities of the building, but both are a necessity for its perfect completeness. I believe that in all public buildings the architect should be held responsible for their entire completion; but what shall be said to the architect who designs a private house in which he leaves the place either for sculpture or painting? One of the causes of the decline in the chase of easel pictures arises from the fact that neither the architect nor the commercial decorator ever considers that it is possible for the cultured man to be interested in the arts of painting and sculpture. The dwelling-house should be a place that is absolutely in sympathy with the dweller; it should reflect his peculiar character and pursuits; and we resent the intrusion of the architect or anyone who would in any way destroy that intimate relation. The fitness of colour for decorative purpose is a question that has never been adjusted by any rule except that rule which is applied equally to the architect and sculptor. The first and most important is the sense of scale. In many decorated public buildings the colour scheme may be satisfactory as a scheme; but the areas of the different colours employed are not in keeping with the scale of the building. It is the duty of the decorator to work within the conditions laid down by the architect. But a responsibility rests sometimes with the architect, who may not have considered the space suitable for the work of the painter or sculptor in his design. The great problem of the application of colour to decoration has been solved in some instances with success, and in every case that success has been achieved by the perfect sympathy of those who would in any way destroy that intimate relation. The painter may spoil the work of the architect if there be not that sympathy. For instance, he may have his scale too large, the result being to diminish the dignity of the building. If, on the contrary, his scale be too small, the *raison d'être* of the painting is not secured. This sense of proportion is the first quality the painter has to establish. It is difficult to speak of colour, since colours bear no definite names, and no one considers colour alone, for colour is entirely altered in its decorative quality by the shapes and sizes of its display. A certain arrangement of colour of certain sizes in conjunction may completely destroy the object of the architect, and yet the same series with a different arrangement may be perfectly satisfactory. Another important point in the value of colour as a medium of decoration is that the forms selected for its display should be such as will best express its peculiar value. Thus

it is obvious that any colour expressed in angular forms must convey a different decorative sense from the same colour displayed by rounded forms. Herein lies a very subtle problem for the decorator, and one that has not hitherto been considered in its fullest significance; for we must describe colour by a form, for colour cannot be expressed without form. All form is expressed by the figures of the straight line and the curve. It necessarily follows that nothing can be expressed without them. It is in the difference of these figures in conjunction that the various orders of architecture or design have their origin. Nothing can be expressed without them; but within the possibilities of their variation lies a field that no man yet has exhausted. We have accepted the conjunction which expresses various orders of architecture, and have accepted such orders as standards because they are governed by conditions created by their own demands. We have associated the conjunction of straight lines, the simplest figure possible having the same meaning, with the conjunction which is the simplest figure possible in the use of lines, but because it is suggestive of something which lies outside, and points to the outside and beyond. The curve, on the contrary, completes its figure alone. The circle it describes is associated with completed things, and is materialistic; the incomplete always suggests possibilities. The complete is final. Bearing in mind the association with these primitive figures, we at once see that the conjunction of straight lines in mural painting the association of line and curve should be supported, and the painter should not endanger the object he has in view by selecting such forms as are unfit to express a conjunction of colour or to support the mental impression aroused by the architecture. He must not only discover what form will best express each individual colour, but be conscious of the difference of effect between the forms we have brought into conjunction. The question arises, "What is the best form, the most suitable form, by which we may display a particular colour at its best? That is a difficult question to answer even in a single instance, but becomes much more difficult and complex when there are several colours to be placed in conjunction. After solving this problem as far as colour is concerned, we have then to consider if the conjunction of colours we have selected is one as that will conform to the special conditions of the building to be decorated. This is a difficulty, and one presented to the painter with varying results, according to the conditions presented by each particular building. The full value of decoration is often marred by the intervention of some outside authority, who is frequently moved to alter the object of illustrating the history of the town or church, that rather than the use of fine decoration; and it is usually the painter and the architect to have the ensemble spoiled by the insistence of the illustration of some incident that cannot conform to the purpose of decoration. We can imagine a design for a decoration in which the dominant colour cannot be displayed on account of considerations of the subject. The artist has then to consider the problem from another point of view: he may have so arranged his colour that, by their juxtaposition he may be able to convey an impression that the dominant note is sustained. In some cases, when Turner was not able to give a sufficiently large area to balance his composition, he placed a point of smaller dimensions with increased strength, and so, that means, a sense of completeness is attained. This fact may be useful to the decorator. The weight or intensity of colour should be also just that strength that helps the purpose. Where a building has a history to record on its walls, but reserves its history for its literature, the artist might be asked if it were not possible better to satisfy the claims of the architect if he substituted decorative landscape in place of the illustration of an incident. It would give a painter a wider scope for a more personal expression, and he would be free from the

conditions that so often make decoration a failure; for his materials are more at his discretion, both in form and colour, and if he succeeded he will not fall into the difficulty of attracting unduly the attention of the spectator from the beauty of the architecture. In conclusion, Sir Alfred appealed to those who have the responsibility of designing a great public building to bear in mind the conditions which must govern the mural painter, and, on the other hand, to the mural painter to consider that the architect has a right to expect that he should be supported in his architectural ideal.

Mr. Edgar Wood, in his paper, said: In thoughts upon colour, unconsciously one is drawn to the East, where colour has received its greatest development and its greatest achievement as colour, where it has produced its most powerful appeals. Wherever we have been arrested by a beautiful colour scheme, even here in the remoteness of our own country, upon examination we shall discover that in the majority of cases it owes its charm to the fact that it is not of our making, but that it has percolated through many ages, many adaptations, many human contrivances; but still its original germ has only been manipulated, and never entirely destroyed. Its intensity of appeal has been so convincing that it has survived all the processes of adoption and use, and its original foreign vitality still remains its strongest attraction. So, if colour has been so powerfully endowed in the somewhat lowly province of pattern, one is inclined to turn to seek out what its career has been in the greater and broader scope of architectural embellishment, and we shall find that in this direction it has lost little of that same pertinacity that was noted in its smaller path. It has come, it has seen, and it has conquered. For a comparison between the Greek or Gothic use of colour as compared with that of the East resolves itself into a conflict between two opposing sides, neither of any touch of mysticism. The use of form and the appeal of colour are aesthetic because they represent two irreconcilable intentions. Colour is emotional, appealing to us by its emotional and sensuous faculties. It represents nothing in itself, and is dependent upon the emotional feeling it produces and its rightful appeal to sensuous sensibility, whilst form is intellectual, and its appeal is the outcome of reason. Greek work as known to us is restrained on the emotional side, nor has it any touch of mysticism. The wall was always secondary to form. This tendency fitted in naturally with the general character of Greek Art, its definiteness and its intellectuality produced the most subtle appreciation of form, and so where the Greek used colour he used it merely to define and accentuate that form—that is, he used it *decoratively*, subordinating to shape and limited to colouring the structure. In Gothic art, it was freely used to decorate wall-surfaces, mouldings, and architectural features, sculpture and carved ornaments being richly and brilliantly coloured, but always with the full intent that form should still retain the dominant position. Colour never encroached upon, or was permitted to invade, the province of structural expression. In the East this is entirely the reverse: all is sacrificed and surrendered in order that colour may become the all-powerful appeal. It was thus that the great colourists employed their great emotional appeal, and of which Venice is rich in its illustration. We recognise it amongst its painters, where the colour and glow of a Titian and a Tintoretto are precisely the same in purpose as the interior of the great basilica of St. Mark's. Turning to domestic work, one problem that all architects have to consider is the right use of colour and the walls that will assist the easel picture—or, as some would say, to minimise the defects of the same. It is often the problem of combining two distinct and conflicting principles. For it is the instinctive desire of all dealing with structure to give their work a lasting and permanent effect, to avoid any sense of detachment, unfixeness, or looseness, that the line shall be

drawn sharply and logically between structure and portability; and that the dominant note shall always be that of structure, reducing as far as possible the degree and extent of the movable. When this sentiment is considered with the main features of structure, such as the walls and ceiling, it finds its strongest outlet. It is here that the architect has exercised his faculties to express not only that his walls shall be strong, but look so. So, even window and door openings, which might produce local diminution of strength are taken advantage of and made to show and even to accentuate, the weakness of his walls, whereby the sense of strength may be increased and intensified. To retain the fundamental and imperative sense of security of structure constitutes the real difficulty, for the introduction of the easel picture undoubtedly tends to destroy largely this mural strength, not only by its sense of portability, often again by its subject, but more often by its treatment of subject. Scale affects the result, naturally; but that only a question of degree. The objectionable quality of pictures and frames being out of proportion to their spaces and walls is only an accentuation of the difficulty. Many consider that all this is only a question of treatment, and that the easel picture, properly considered and placed in its right relationship to its surroundings by judicious treatment and hanging, may be the acme of decoration; but this is hardly convincing. That thoughtful consideration in hanging, framing, and fixing can minimise much of the objection is admitted; but, however well marked, there still remains sufficient of the difference of aim and habit of mind of the two intentions—that of the fixed aim of the architect, or constructor, and the divorced and isolated thought of the painter. The want or absence of this relationship of the easel picture to the conscious decoration of which all schemes of design consist, and which also extends to the portable furniture, does not, however, make the objection less, as it must be related to something. If a sincere work, it is related to something in the painter's mind, and, again, it is related to the studio; but it is impossible that it can be related to the walls, and rarely is it related to the decoration. "The portability," Mr. Walter Crane writes, "of the easel picture has much to do with its unrelated character. Though the word 'decoration' is frequently used, it is difficult to define it, so as to actually define its limitation. It is, in consequence, employed in many and distinctly different ways, and certainly to many paintings of very different treatment. It is generally accepted as embodying a simplifying of masses, a flattening of treatment, curtailing a tendency to absence of shadow, confinement to simple planes, careful composition in the proportionable filling of space, all combined with architectural dignity or structural feeling by form and line, and giving a mural feeling and a mural rest. There can be no stronger guidance to decorative effect than the influence upon the painter of the walls themselves, provided he will allow their unconscious appeal its full scope by executing the work upon the site. The argument that easel pictures, however realistic, are in this respect no different from the effect of what is seen through windows, would be answered by the fact that windows which are intended for exterior prospects are not always helps, but rather destroyers, of ideal decorative effects, and the most successful lighting is when the source is high and concealed. Again, most architects guard against the too realistic effect of window views by the treatment of their glass areas, such as limiting them so that the sense of opening shall be kept within scale and the architectural sense shall always be dominant. The lecturer's preference for the easel picture, the judicious employment of drapery as frequently offering a satisfactory compromise. The drapery can be rich or simple, according to what it has to receive. Much, again, will depend upon the character of the drapery in respect to the folds that it will in itself form by the weight of its own material and hanging; and this, again, will be controlled by the size and scale of the pictures and their gold

frames. If the drapery is, again, made subordinate to the walls by being arranged so that portions of the wall appear preferably at the angles and the upper parts, they will have the effect of partially framing it. The structural or mural feeling is then retained, and the sense of picture portability is lessened by being echoed by the drapery. The drapery itself also adds considerably to the sense of comfort in a room. In all treatments of wall always be remembered that it has not only to receive pictures, but has also to serve as a background for the living and their dresses. For water-colours in white mounts it is difficult, as a general principle, to depart from the accepted treatment of light backgrounds. As white mounts clear up the water-colours, so does the light-wall treatment, and though it has been said that white is the refuge of the destitute, that should not be set against the principle, but only against its commonplace treatment. We are often given the precept that Nature should be our guide, not only in form, but in colour. It is a safe thing to say; but it is a generality that is separated very greatly from the work of man, and all designers recognise that until that separation is a distinct one their work never appears convincing. This is the experience of all designers—not only those that seek for form, but also those working in colour. General principles can be gathered from Nature. The principle of quantities, reliable ideas of tone, and, above all, quality of colour, can be learnt and remembered and be made of service. History colour-development shows that nature study has been the source from which they have come, and so, in consequence, the colourist whose materials of expression have been landscape comes to the work of decoration with, perhaps, an unconscious, but certainly a valuable, asset for the work. But outside the question of evidence, either of Nature or of man, it is man's work that is most interesting to man. Man's work is paramount—interesting not merely from its source, its development, its interpretation, in its final result; and therefore, however beautiful or costly the material may be—either of wood, metal, or marble—the materials themselves are not the dominant note which makes the strongest appeals to our intellectual attention. It is in the addition to the human brain and endeavour have added and supplied that we must consciously seek for our permanent satisfaction, and so it must follow, as a general principle, that the greatest accent, the main focus, of any total must and should be given to those parts that contain the largest proportion of human expression. For instance, marble is one of the most beautiful materials that Nature has provided for our service; but in decorative effect, however skillfully employed, it will never give the same convincing satisfaction that human effort has given us when it contributes to the painted wall. Mosaic, again, will ever make a stronger appeal than even marble, because it permits of a greater proportion and display of the human faculty. Nature's materials have to be made subordinate to the work of man: marble, metal, wood, or fabric, all serve for the complete and supreme manifestation of human intellect through form and colour. Though all important the form and shape that the human mind has given to its work, the surface alone derived from it always represents a large area, and therefore the treatment of it, remembered as quantity alone, has an importance that should justify the architect in his legitimate desire to control the decoration. Such a logical conclusion is not always admitted. There is often a strong hesitation and reluctance on the part of the laymen, sometimes shared by architects, to apply colour to hard woods, and they look largely, from the fear of being laid out, to the future in relation to the quality of surface. The failure to realise that wood may be employed for durability alone, and therefore especially suitable and worthy of receiving skilled and careful colour treatment, has often deprived us of what would have otherwise been valuable additions to our colour possessions and our colour enjoyment. What architects have to ask themselves is, Have they fully utilised the

opportunities of colour in their work? Has this valuable and important sense received its legitimate appeal in their completed results? Colour of an enduring type, decoration even of an intending permanency, is still the unfortunate exception, not only in domestic work—which can be partially excused by existing social conditions—but in our public and decorative buildings, where no such conditions exist. I do not only recall the absence of great mural decorations, from which these buildings so lose the occasion of a great appeal and the opportunity of a great impression, but the same absence of colour and pleasure in colour is also missing in the minor surroundings. In seeking the reason why the painters should have deserted us, thoughts turn upon possible causes. It is difficult to believe that our productions are so uninteresting and so dull that they fail to attract the painter, and he feels that they offer no scope for his craft and his contribution, or that it can be the plea of economy which intervenes, when we remember the expenditure on the so-called architectural features and enrichments which would pay for permanent decoration of a high order, not once, but more. Or is the cause to be sought in the changed disposition of our patrons? Have the painters deserted us because they have no influence to bring back the painter to our assistance, that neglected art of great decoration shall be, so far as we are able, a neglected craft no more.

Prof. Gerald Moira, in proposing a vote of thanks to the readers of the papers, said when we considered the landscape paintings executed by Puvion de Chavannes in the public edifices of Paris we saw the highest form of decorative art as applied to architecture. Mural decoration had been employed of late more than ever before, and for the extension of its use we owe much to architects. The great difficulty, with the architect and the artist alike, was how their work commended itself to the client's purse, and he believed that if decorative artists were willing in the future to undertake commissions on a little more economical scale they would see artistic effects executed that would make the days of George V. interesting to future historians of art.

Mr. John D. Grace, in seconding the motion, dwelt on the architectural side of the subject. They had heard of it again and again how sincerely painters and architects desired to sympathise with each other; but there was a sympathy that was platonic only, and a sympathy that was genuine, helpful, and co-operative. One great difficulty was that too often the decorative painter of to-day was not sufficiently versed in architecture to comprehend what the designer was longing for and striving after. The decorative artist had placed at his disposal in a building a definite, definite, and definite space, and he ought to be able to select in his colour scheme such a distribution as should not only accept, but emphasise, these restrictive conditions. The great artists of the Middle Ages—from the 13th to the 16th centuries—always accepted the conditions laid down, and supported their pictures by such accessories as to fit in with the surrounding walls, the colour scheme being so distributed over the building and Mr. Grace insisted, in illustration of this point, that several fine reproductions by the Armada Fine Art Society of works by Giotto, Sodoma, Signorelli, and other Italian artists, to show how perfectly the architectural setting and the pictorial effect were blended together.

Mr. H. Heathcote Statham thought that

at the basis of colour schemes of decoration in architecture the actual tints of the building materials themselves should be regarded—a point which had hitherto been too much neglected. That might be a much less intellectual side of the subject than the theories to which they had listened that evening, but these material questions governed the whole matter, and they could not be ignored. He thought there had been an unjust attempt to vilify the easel picture. In a sense it was decorative in that it should possess and exemplify harmony of line; but there should be a distinction between merely decorative painting and a picture which, depended upon its own fine qualities for effect. There were many great works, such as the landscapes of Corot and the delightful "Bacchus and Ariadne," by Titian, in the National Gallery, which possessed in themselves an inherent beauty which was decorative apart from all surroundings. It was unduly undervaluing the art of painting if we regarded the character of the mere accessories first and foremost. Easel paintings had a distinctive claim for themselves as works of art, and were not merely decorative. Mural decoration as such was partly subordinate; something of its higher qualities had to be sacrificed in order that it might the better harmonise with the surrounding architecture.

Mr. H. G. Iberson remarked that Sir Alfred East's paper was made up of two parts—a practical portion which all could follow and appreciate, and a mystical portion which, for one, was not sure that he fully comprehended. He should like to hear from Sir Alfred some definite teaching as to the form which a given colour—say yellow—naturally possesses and suggests.

The vote of thanks having been accorded by acclamation.

Sir Alfred East replied. He observed that he could not agree with Mr. Wood in his disapproval of easel pictures, for he held that they had an intrinsic art value. The injurious effect an easel picture might have on the decoration of a house or public building was surely not the fault of the artist, but of the architect, who should have provided for pictures and statuary in his general scheme. The assertion that there was no room in decorative proposals for the easel picture, because of its portability, was founded upon false premises. The very fact of its portability suggested movement, life, vitality. It was, perhaps, because the whole surroundings were fixed and permanent that so much of our modern architecture appeared dead.

Mr. Wood, in responding, explained that he had not contended that the architect had no place nor use for the easel picture. The easel painting was the greatest and grandest expression of human effort. There was no place for the easel picture; but he was dealing merely with the decorative work executed to fit a given position.

AWARD OF PRIZES AND STUDENTSHIPS

The Secretary, Mr. Ian MacAlister, read the following deed of award of the various prizes and studentships for 1911-12 made by the Council under By-law 71:—

Institute Silver Medal and Twenty-five Guineas (for essays).—Subject: The Principles to be observed in Designing and Laying out Towns. Taken from the Architectural Standpoint. Essay submitted under motto "Redundancy," by T. Harold Hughes, A.R.C.A., 8, Fonthill-road, Aberdeen. Twelve competitors.

Institute Silver Medal and Ten Guineas (for drawings).—Subject: Measured Drawings of Ancient Buildings in the United Kingdom. Awarded, "Zeta," Arthur Edwin Maxwell, 3 Margaretta-terrace, Chelsea, S.W. (Compton Lyngates, Warwickshire). Certificate of Honour, "Shonemine," Arthur Baylis Allen, Royal College of Arts, South Kensington (The Octagon, Ely Cathedral), and "Arno," Walter M. Kewer, Royal College of Art (Church of Santo Spirito, Florence). Five competitors.

Scone Medal and £100 (for foreign travel).—Subject: Design for a Guildhall. Not awarded, but a certificate of honourable mention and £50 each given to "Antar," Ect de Jong, 3, Sholebuck-terrace, Chapel Town-road, Leeds, and to "Circle City," William Friskin, 182, Kensington Park-road, W. Certificates of

conceivable mention to "Sailing Ship," C. A. Harding, jun., 45, Kensington Street, Hillside, Glasgow; and to "Vista," Bertram Lisle, 43, Devereux-road, Wandsworth Common. Thirteen competitors.

Over Jones Studentship: Certificate and £100 for travel and study of colour.—Noel H. Leaver. Two competitors.

Pugin Studentship: Silver Medal and £40 (for travel in the United Kingdom).—James McGregor, 42, Laburnum-road, Hampstead, N.W. Certificates of honourable mention to C. W. Keake Anderson, W. J. P. Jones, Julius R. Seahart, and R. Norman MacKellar. Nine competitors.

Under Prize: Certificate and £50 for travel in Italy.—Subject: Design (according to the methods of Palladio, Vignola, Wren, or Chambers) for the Central Court-yard of the Royal Exchange Covered with a Roof.—Red Lion, Louis de Soissons, 29, Beaufort Mansions, Oakley-street, Chelsea. Certificate of honourable mention, "The Circle," Thomas H. Chalkley, 42, Jrange-road, Bermondsey, S.E. Eleven competitors.

Under Cates Prize: Forty Guinea.—J. B. F. Cowper, A.R.B.A., 96, Heath-street, Hampstead, N.W. Three competitors.

Grissell Gold Medal and Ten Guinea (for Design and Construction).—Subject: Design for an Ideal Exhibition Building.—"M.C.M.XII," Thomas Braddock, 169, Merton-road, Wimbledon. Four competitors.

Godwin Bursary, Silver Medal, and £65.—Jeffrey Lucas.

Under Price for 1911, £10 in books.—Philip Dalton Hephworth.

The Secretary added that the Council had examined and approved the drawings executed by James Bertie Francis Cowper as Pugin Student for 1911, who travelled in Northants, Rutland, Lincolnshire, and part of Norfolk.

The President announced that at the next meeting, to be held on February 5, the Presidential address to students would be delivered, and Mr. Gerald C. Horsely would read a criticism of the works submitted in competition.

COMPETITIVE WORK PREPARED IN ARCHITECTURAL EDUCATION.

Immediately afterwards a young man rose from the back of the hall and asked if it was right that designs for the Institute competitions should be prepared in architectural schools.

The President asked if the gentleman had any information to communicate.

The interrogator replied "No," but that he thought the practice he referred to was not fair.

The President replied that the business of the meeting was now concluded, and that if the gentleman who had risen wished to make any representations he should be pleased to give him an interview at his office next day.

SIR CHARLES NICHOLSON ON CONSTRUCTION AND DESIGN.

In Wednesday, the 17th inst., Sir Charles A. Nicholson, Bart., read a paper before the Manchester Society of Architects on "Construction and Design." There was a very large attendance, and the president, Mr. Edgar Wood, occupied the chair.

Good construction and good design, Sir Charles Nicholson said, are equally necessary elements of our art, and therefore it is worth while to turn our attention to well-known buildings where the union of the two elements can be easily followed. He could confine his remarks that night to Gothic work. One point became obvious, that, as cathedrals were built in a leisurely way, each section, and even each bay, had to be structurally independent and self-supporting. Norman buildings lent themselves to this gradual method; but in Gothic structures strong temporary abutments had to be provided. The weakness of Norman buildings was due to the bad material rather than to the thrust. The collapses of Winchester, Chichester, and Ely towers were due to this cause. The weakness of Gothic structures was that they were maintained in a precarious state of equilibrium which approached instability.

Sir Charles then proceeded very minutely to analyse the development of Gothic construction, first as regards the relation of buttresses to the vaults they supported, then

as to the development of the vaults themselves, and finally the evolution of the apse plan, paying special attention to the parallel process of evolution in England and France. Many points of interest in the construction of Wells Cathedral were instanced, and a section of the tower which was thrown on the screen was specially interesting, showing how the upper stages had been built as light as possible, and how the piers below had been strengthened by the well-known strainer arches, and the solid roof screen, and how the tower was latterly stiffened by the filling up of the long lancet windows of the lantern. The ingenious way of augmenting the thrust of the eastern flying buttresses was illustrated. The lower portion of the buttresses, which are received by the slender marble shafts in the Lady-chapel, are built with courses oversailing towards the west. After a survey of the period of fan vaulting, the lecturer came to the application of the principles which we could discern in the old work to modern construction. How modern materials should be treated was a question still awaiting solution. Slides of ferro-concrete buildings, where the concrete was honestly shown, and the monolithic nature of the structure expressed, were exhibited, and much appreciated by the audience, most of whom recognised Sir Charles's own work in Jamaica. In concluding, the lecturer said that the present generation of architects was capable of evolving artistic solutions of each free constructive problem that arose; but they should make use of the large supply of knowledge that was to be gained from the stupendous works of the old masters of our art.

MR. MAULE ON ARCHITECTURAL EDUCATION.

On Wednesday, the 24th inst., Mr. H. P. G. Maule read a paper on "Architectural Education," before the Manchester Society of Architects. The broad basis of education, Mr. Maule said, was not the superperfect equipment of the giant few, but the sound, sane, and sober training of the many. Specialisation is increasing; but it should be based on a broad and solid foundation of general knowledge. The more everything tends towards specialisation, the longer must be our apprenticeship. He felt that there had not always been sufficient regard paid to the psychology of education, and induction by training of certain habits and qualities apart from the particular objective.

When a student is brought from practical training to the forced draught of the school he gets general and special knowledge in an artificial and tabloid form, at the expense of training in initiative and self-reliance, and in observation and deduction. This system is, then, doomed to failure unless the student is brought into contact with the facts of actual experience which he will afterwards find in the world. The general basis among educationalists that our systems fail in this regard.

In addition to neglect of this aspect, there is a tendency to confuse the issue of general and specialised education. The highly-specialised forms of architecture have been regarded as the goal of art. He referred to the erroneous impression that monumental design should form part of the first four years' course. Is there any recognised training in the arts, sciences, or profession in which the highest ultimate problems were given at an elementary stage? It does not follow, however, that because monumental problems are relegated to an advanced stage that the qualities which underlie the production of great architecture would be neglected. They would be insisted upon from the commencement in problems, however simple and small in scale, with a view to the ultimate larger conception of monumental architecture.

The chaotic state of opinion is shown by the report of the Board of Architectural Education recently issued in the Journal of the Institute, which, while containing much that is excellent, suggests an amount of ground to be covered in four years which is

simply abnormal; and the matter is further complicated by the present state of architectural policies. He felt, however, that a definite idea as to the real objective might be found.

He thought the following main principles should be compulsory:

(1) The compulsory insistence on a period of training of not less than four years, two of which should be passed in an architectural school. The standard might rank with the present intermediate papers.

(2) The formation of machinery for more advanced and specialised study, the first grade of which should rank with the present final papers. The remaining advanced courses would be of the nature of specialisation.

(3) Greater time for study by all who wish to do more than acquire a minimum standard.

The whole question hinges upon the interpretation of the functions of the architect, and the recognition of the fact that architecture is structural and decorated, and not a decorated art constructed, a living, pulsating structure; not scene-painting in stone, with the engineer as stage carpenter. The essential qualities of the general education should be: (1) Scientific study of materials and construction in their elementary form. (2) Analytical study of past building methods and architectural expression, and the deduction from this of the broad principles of design. (3) The application of the above—the production of design from knowledge and study of principles. The study of the humanities of art should form part of the training from the very first.

This general training, he was sure, from a varied experience, could not be mastered by the average student in less than four years.

CHIMNEYPIECES AND INGLE-NOOKS.*

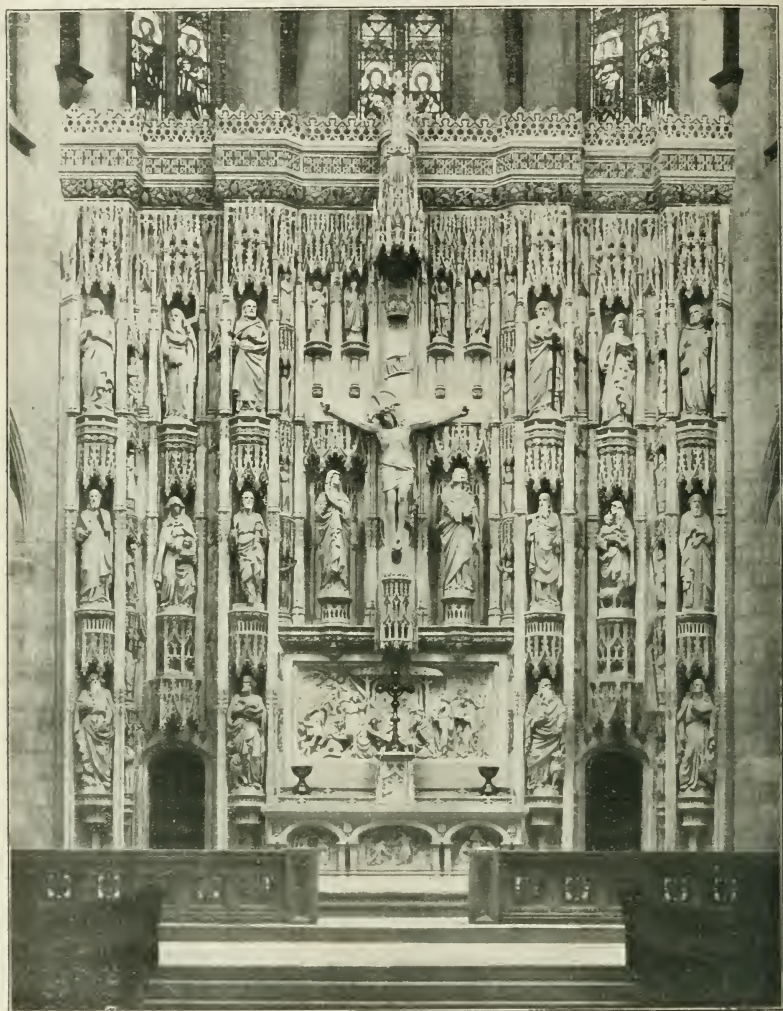
Place the coalwipers and the miners—whose quarrels, rendered more fatal as regards consequences to ourselves by the extortion of the middleman, may quite conceivably make the open fireplace the costly luxury of the millionaire ere many more winters pass—the fireside will ever remain the centre of the Englishman's domestic joys and comforts. Provided always he is not scared by the prospect of some of the up-to-date "ingle-nooks" and "cozy corners" in what Mr. Rothery calls the "glorified cottager style" of the garden suburb.

His book, therefore, is a useful one, chiefly by reason of its many illustrations of examples of all dates from the 15th century downwards. Most of them, of course, are familiar to our own readers, who may not always quite follow Mr. Rothery's criticisms, even while smiling at their piquancy. As he says (p. 114), "there is always danger of playing the sedulous ape," and it is possibly quite as true of some of us as of the men of the 16th and 17th century that "decided incoherence of design and incongruity of decoration" are not inseparable from our latest expositions of the Renaissance.

However that may be, those of us who have had the luck to live in a decent, well-built 18th century house will probably agree that "when builders began to improve on their methods . . . the day of the cozy corner was waning." In these days of draughtily "garden-suburb" houses and eligible artistic villas of the same type, it has doubtless again become a necessity—not, perhaps, that it need monopolise half the small room, or "prove a sore trial to the ghost of formal Robert Adam" (p. 190), who, at any rate, left us some chimneypieces that do "fit in with his rooms and harmonise with all else there," as Mr. Rothery says on p. 135, even if he "did not oppress with the busyness of contour and colour of Kent."

It is proposed to illustrate the old Brideswell in Clonakilly, into a town hall, and Mr. J. A. McCarthy, C.E., Timoleague, has been instructed to prepare plans in this connection.

* Chimneypieces and Ingle-Nooks. By GUY CROFT, ROTHERY, London: T. Werner Laurie, Clonakilly Inn, 68.



NEW HIGH ALTAR AND REREDOS, CHRIST CHURCH CATHEDRAL, ST. LOUIS, U.S.A.
Mr. K. TULLY, St. Louis, Architect. Mr. HARRY HEMS, Exeter, Sculptor.

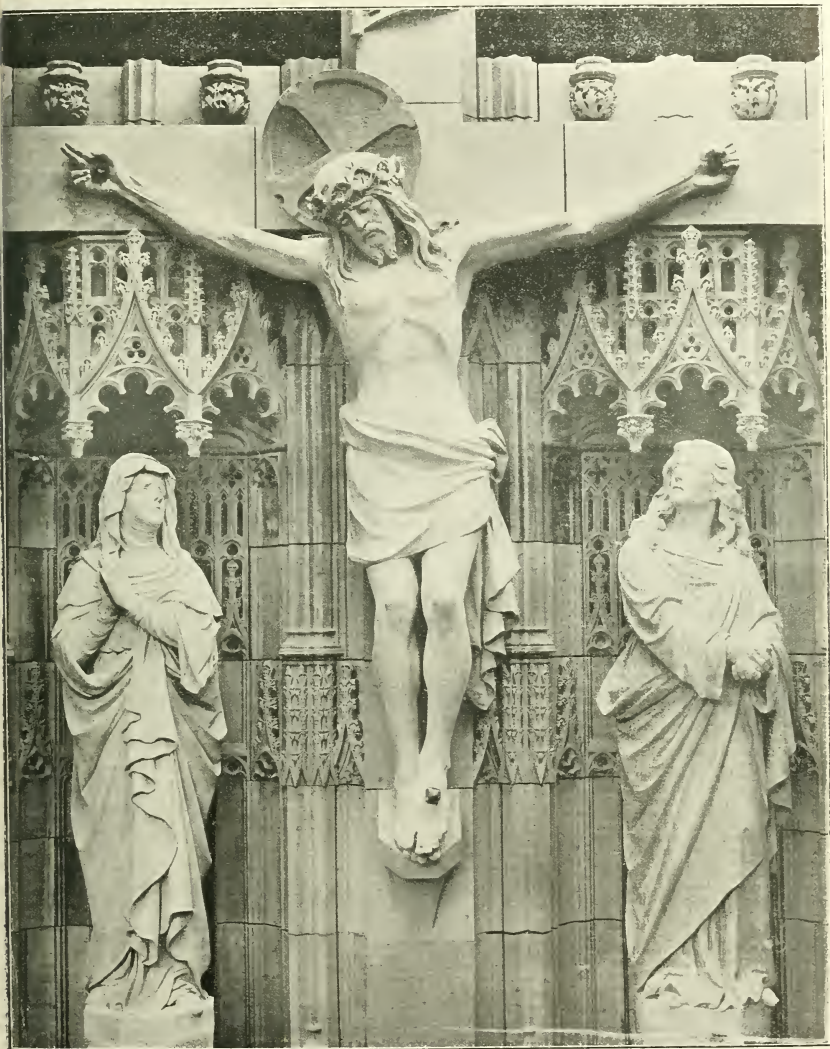
CHRIST CHURCH CATHEDRAL, ST. LOUIS (MO.), U.S.A.

This cathedral, the oldest west of the Mississippi River, has during the last few years been greatly improved under the direction of, and from drawings by, Mr. K. Tully, a well-known architect, of St. Louis. The west front has been largely remodelled; a baptistery has been added at the north-west angle of the fabric, over which rises a well conceived and lofty tower containing

three bells. The edifice itself is of Early Gothic type. The reredos that has now been placed in its choir is of 15th-century Perpendicular character, its motif being the high-altar screen at St. Albans Cathedral, restored by Mr. Harry Hems, under the direction of the late Sir Arthur Blomfield, A.R.A., and at the expense of the late Lord Aldenham, a decade or so ago; and the almost equally fine altar-screen, of much the same type, at Winchester Cathedral, which was renovated a few years later, at the

expense and under the direction of its Dean and Chapter.

It was in the autumn of 1909 that, acting on the advice of Mr. Tully, their architect, the Dean and Chapter of Christ Church Cathedral, St. Louis, commissioned Mr. Harry Hems, the well-known ecclesiastical sculptor of Exeter, to carry out the proposed new reredos and altar, the tacit understanding being that he should complete and erect the whole so that all be ready for dedication by the end of the year that has just passed.



CENTRAL FIGURES. REREDOS, CHRIST CHURCH CATHEDRAL, ST. LOUIS, U.S.A.

Mr. K. TULLY, St. Louis, Architect. Mr. HARRY HEMS, Exeter, Sculptor.

away. This has been successfully accomplished, and the unveiling and dedication, by Dr. Tuttle, D.D., Bishop of the diocese and Senior Bishop of the United States, took place on Christmas Day morning before an immense congregation.

Like, to a large extent, its counterpart at Winchester, the reredos is constructed

entirely of Caen stone, the blocks used for the purpose having been personally selected at the quarries in Normandy by Mr. Hems. The whole of the work has been carried out in the studios of Messrs. Harry Hems and Sons at Exeter, and the finished stones, weighing unitedly 160 tons, were conveyed a distance of upwards of five thousand miles,

so carefully packed that upon arrival at their destination it was found that none had sustained the slightest damage. Special permission was obtained at Washington for Mr. Hems to take over three of his most trusty fixers to place the whole in position, under the latter's personal supervision—a task that took exactly four months to accomplish. As

a work of the highest type of ecclesiastical art a religious gift calculated to improve the minds of the people generally, both reformed and altar were admitted into the United States free of any duty.

The height of the fabric, measuring to the top line of the cresting, is 34ft. 6in. from the marble floor below. The subject, sculptured in high relief immediately over the altar, is a spirited representation of the Nativity. The altar itself and its two retabes are all of Cuen stone; but the slab—the mensa—is of highly-polished Carrara marble, a fine slab 12ft. 6in. by 2ft. 6in. by 6in. The tabernacle is of polished English alabaster. The sculptured panels in front of the altar represent respectively (centre) the Meeting of Mary Magdalene with Our Lord in the Garden after the Resurrection, (north) the Annunciation, and (south) the dedication in the Temple. The doors in the doorways opening out into the foretory are of bronze. The whole cost of reformed and altar has been about £10,000.

AN EVENING IN THE INSTITUTION LIBRARY.*

By JULIAN C. ROGERS, Honorary Member.

The staple of our library is British topography; professional textbooks also, as a matter of course. The earliest county history is Lambarde's "Kent," of which we possess an excellent reprint dated 1656—that is, two years after its first publication. We have also a copy of Kilburne's "Kent," published in 1657, three years after Lambarde's work, to which it is inferior in every way. He was either a very credulous or a very mendacious person. Here is an amazing piece of natural history: "A monstrous fish shot himself ashore" (in Thanet), "where, from want of water, he died"—as fish sometimes do under such circumstances. "His roaring was heard above a mile." His length was twenty-two yards, his nether jaw opening twelve feet. One of his eyes was more than a cart with six horses could draw, his tongue was fifteen feet, and his liver two carloads." That fish is one of my most cherished mental impressions; but let me hasten to add, lest I be misunderstood, that Baron Münchhausen did not live until a century later, and natural history had to put up meanwhile with the services of inferior agents. I understand that the baron's name is still held in reverence by his native Havelberg for his exertions in "extending the sphere of German influence" in the hinterland of Unveracity. Sir William Dugdale's masterpiece, "The History of Warwickshire," was published about two years after Lambarde's "Kent," but there is no comparison between the two authors. Lambarde was an ignorant amateur, Dugdale a professional antiquary and a literary craftsman of the first order of excellence. One of the models on which all subsequent county histories have been fashioned. We possess a copy of the original edition of this famous book. It is enriched with many plates by the celebrated engraver Hollar, who also contributed many illustrations to the same author's magnum opus "The Monasticon," of which we possess a fine, though not an original, copy. There could not be a better refutation of the splendid work of the Greek axiom: "A big book—a great evil." Let me commend to your choice J. T. Smith's "Antiquities of Westminster," a most delightful book. It abounds especially in admirable illustrations—among them contrasted views of the so-called Painted Chamber of Westminster. You will find them on pages 48 and 50. The first of them represents the very earliest attempt in the art of topography, the second the improvements of the art in a later stage of its development. It also shows, on No. 6 of the supplemental plates, an admirable ground plan of Old Whitehall Palace before the fire. No. 39 on this plan was the residence of the scandalous Mr. Chiffinch, or Chaffinch (familiar to readers of Scott's "Fortunes of Nigel"), the minister to the base profligacies of King Charles II. Another book which

should by no means be overlooked is Parton's "History of the Parish of St. Giles." Apart from its literary merit it is of interest from a plan showing, in detail, all the houses and the names of their original owners in the year A.D. 1300. I believe this to be the earliest plan of the kind in existence. The library has its humorous, conscious and unconscious. There is among the tracts a pamphlet on Leaschold Enfranchisement, the opening sentence of which is a masterpiece of verbal definition: "A leaschold is an evaserated freehold, stuffed with law." It is much to be regretted that the rest of the tract does not fulfil the promise of this hopeful beginning. I have often wondered what sort of man he who wrote a book which he entitled "Talks on Manures," which you will find in the library. The word "Talks" is so friendly, so suggestive of quiet colloquy by the fireside; but with manures for a subject the romance is gone. Indeed, I know of nothing to match it save a little book of erotic poems written by a footman and sent me by the author, dated "The Muse in Livery"—a delightful blend of Plush and Pantheism; or, perhaps worse than all, a work published many years ago by a writer on cutaneous diseases with the appallingly suggestive title, "Hunt on the Skin." There is a book on the shelves with the highly deceptive title "Blount's Jocular Customs," a treatise of the most arid description on manorial law. I have been able to trace the origin of this particular use of the word "jocular." That it is utterly misleading I know for certain, for I have seen a student take it down with eager expectancy and hastily replace it with a look of deep disgust. I have already referred to Fuller's "Worthies of England"—a classic in the language. Its humour is undeniable; but it is marred by the verge of pedantry. It was written in the time of James I., when a mode of verbal "concoits" which a book contained was the measure of its excellence. One of the strangest topographical works ever produced is the "Polyolbion" of Michael Drayton, described on the title page as "A chorographical description of the tracts, rivers, mountains, forests, and other parts of Great Britain." It was published in 1612. Drayton is the "Tusser" of topography, except that his verses are of a higher order of poetical merit, in which the personification of inanimate objects bears a conspicuous part, after the fashion of the period. There is nothing like it in the language. A lyrical Bradshaw or Euclid in hexameters would seem very little more strange to modern eyes. The book is annotated by John Selden, and has for frontispiece the portrait of the unfortunate Henry, Prince of Wales, who, had he lived, might have deprived us of the blessing of Charles II. It also includes some commendatory verses by that much neglected poet of the Commonwealth, George Wither (beloved of Mr. Joseph Chamberlain), and some remarkable maps, well worth examination as grotesque specimens of cartography. It would seem from this that the rivers and watercourses in those days had each its own female conservancy, whose duty it was to look after things by sitting permanently in mid-stream. As an almost inevitable consequence, shavily-dressed young men hovered about in a state of riparian rapture, intent on enticing them ashore. The various conservancy boards would add greatly to their popularity by reintroducing this charming art of seducing them for him by Chatterton, and solemnly printed the pseudo-poems of the imaginary monk Rowley with which his correspondent supplied him. Many years ago I marked these forgeries in our copy of the book, to which they have lent such a dubious fame. The curious can read them on pages 600 to 609 and elsewhere in the volume.

There should be a facsimile of one of the poems on page 637, but for some reason it is missing. Those who care for early chronicles should look at our copy of the magnificent volume of Reports of the Record Commission, published under the title "Monumenta Historica Britannica." Here you will find the oft-quoted "Chronicle of Bede" (circa 673-735), "venerable," if anyone ever deserved the title, and the "Anglo-Saxon Chronicle," printed in English and Anglo-Saxon in parallel columns most interesting for those who care to achieve some knowledge of the rudiments of our native tongue, and useful for students of the much-neglected poet Gower in his last, or English, period. The volume also contains a most instructive map of Roman Britain.

Agriculture, as I have said, is very fully represented on our shelves—at any rate historically—but is deficient on the modern side. Here you may trace its evolution from the time of the first agricultural revolution. Perhaps the most instructive is "The Farm for the student, at any rate—the monumental" "History of Agriculture and Prices," by my late relative, Professor Thorold Rogers, based on the records of Merton College, Oxford, the oldest landlords in the country, their ownership extending without a break from the 13th century to the present day. Next let me call attention to Fitzherbert's "The Boke of Husbandry," a copy of which, in black letter, dated 1534, is in the library. Thirty years after Fitzherbert came Thomas Tusser's rhymed jingle called "Fire Hundred Points of Good Husbandry," which was, I presume, supposed to be got off by heart—a sort of memoria technica. Tusser had a passion for doggerel verse, even committing his autobiography to that detestable medium. Strange to say, he is included by the large charity of Southey among the "Early British Poets." Our copy is only a reprint dated 1812. Next comes Gervase Markham, of whom it is sufficient to say that his industry was greatly in excess of his knowledge, while his principles were detestable. He thought nothing of republishing his old books under new titles, until the booksellers combined against him, making him sign a bond not to write any more works on agriculture if he wished for further employment. This excellent plan is well worth reviving in our times to check the fecundity of some authors I could mention. Of Markham's thirty-two lucubrations we happily possess but eight; all, however, are gems of absurdity: a perusal of his "English Housewife's Household Physic" would cure the most confirmed dyspepsia; his "The Sovereign Remedy for human ills is what he calls 'fasting spittle,' which, whatever its therapeutic value, has the advantage of being cheap, and under modern fiscal conditions likely to be abundant. Not to labour the list, Walter Blith's "English Improver Improved" is worthy of a passing glance, as well as Hartlib's "Legacy of Husbandry," published in 1692, and the "Husbandry of the Commonwealth." This Hartlib owes some of his fame, such as it is, to the fact that he was Milton's friend. It was nearly a century later that Jethro Tull published his epochal treatise on "Horse-hoeing Husbandry," which marks the first real advance in British farming for some centuries. Tull, as everyone knows, was the inventor of the drill. There is an excellent copy of his work in our library. It is sufficiently noteworthy to mention his contemporary Maxwell, of whose "Practical Husbandry" we possess an original copy, and we come to that prince of observers, Arthur Young. I believe that we own a complete set of Young's writings. They can still be read with profit, though he belonged to that curious class of men competent to advise others in a business in which they are themselves dumb. As a writer, he was a fussy and pretentious person, but as an annalist of agriculture he remains quite unrivalled. There is no more interesting book in our library than his "Tour in France," written on the very eve of the French Revolution. His "Tour in Ireland" has been recently republished, and I had the happiness to discover that we possess Young's

* Read at the ordinary general meeting of the Surveyors' Institution, Monday, Jan. 22, 1912.

own copy of this work, copiously interleaved with original sketches, which were supposed to have disappeared. Such was Young's enthusiasm that he recorded on his wife's obituary that "she was the great-granddaughter of the first person who used marl in Norfolk, a new thing to immortality." It reminds one of the ardent naturalist who staid on his mother's grave. I do not think it is generally known that King George III., the dullest of his race, contributed to Young's "Annals of Agriculture" under the pseudonym of Ralph Robinson, who was his Windsor shepherd. It was agriculture that he understood, so far as he understood anything, of the writings of William Cobbett, Young's success as an animalist, we possess nothing but his immortal "Rural Rides," which is almost a classic in the language. There is an indefinable charm about the book. It seems to exhale the very air of the breezy downs and sequestered lanes he loved so well. No man is harder to place in the hierarchy of agricultural writers; but as a master of the pellucid English he has few equals. His book is also an excellent school of vituperation for anyone that can graduate in that gentle art; but his provocations were great, and he lived and wrote in that most miserable period in all agricultural history—the first quarter of the 19th century. Probably few of the Members have had the curiosity to take down a book with the formidable title "A Law Dictionary," by Dr. John Cowell, (theatrical), Coke always referred to him as Dr. Cowbell), which is a perfect mine of information on feudal customs and manorial law. It illustrates better than any other book with which I am acquainted the monstrous edifice of legal chicanery which came in time to overlay the common law of the land. Persons delicately referred to by Carlyle as "improper females" had a bad time of it in the Middle Ages, as you will see in Cowell if you refer to the word "Free-bench." The book is a curious history. It was condemned to be burned by the common hangman for certain definitions of the words "King," "Parliament," "Prerogative," etc., Cowell, to commend himself to the good graces of James, contending that the monarch was absolute, and once consulted Parliament "of his goodness," waiting for it to make laws without its consent—a doctrine pleasing enough to the King, but quite intolerable to the House of Commons.

The very mention of dictionaries calls up the gigantic figure of Samuel Johnson—the literary Titan of the 18th century, on whose merits the opinions of his fellow countrymen were so curiously divided—to some a synonym for erudition, to others a boresome, disgusting, to others for all that a man of conduct and morals. It has been said that his name is a touchstone of ethical perception, and I am not concerned to deny it. What is certain is that no man before or since ever engaged, single handed, in so gigantic a task as his dictionary or carried it through so successfully. The preface is a miracle of erudition, and should be read by anyone who values the genesis of our English language. I am happy to say that we possess a copy of the original edition, and there is surely some pathos in the fact that here we can gaze upon the actual printed characters on which the great doctor's poor myopic eyes rested as he stooped over the proof-sheets in his dismal garret in Gough-square, the front of his old low wig gleaming in the candle-flame. He employed five amanuenses, all Scotsmen, as named Maclean, the others Macdonald, Shield, and Stewart, whose names thus live in history. The work occupied him seven years, and he received for it a sum per annum which falls short of many a fee now paid to counsel for a couple of days' work in obscuring the face of a single compensation case. Johnson, of course, was no philologist, and was quite unacquainted with German literature, and his definitions are not always unimpeachable. His selection of authorities was probably the best available at the time, and it is said that he was assisted in his choice by Pope. His definition of "cats" is well chosen—better than that of "excise" as "a hateful impost levied on commodities and adjudged, not by the common judges of

property, but by wretches hired by them to whom excise is paid"; or of "lexicographer" as "a writer of dictionaries, a harmless drudge that busies himself in tracing the original and detaching the significance of words"; both highly characteristic specimens of his highly characteristic style. The possessors of a good copy of Bayle's great historical and critical dictionary, a miracle of learning and research.

Let me commend to your notice the deeply interesting collection known as the "Somers Tracts." Most of them are what remained of Lord Somers's library after a disastrous fire in 1752. How many of these papers (some of the highly cultivated nature of the Somers hands does not appear; but it is obvious that in his position as Lord Chancellor he would have access to many State documents which, with his keen love of literary pursuits, he probably copied, and perhaps in some cases appropriated. There are in this vast collection of tracts documents of extraordinary interest for the student of history. That this is so is shown by the fact that it is edited by no less a person than Sir Walter Scott. Our copy belongs to the second edition, published in 1809, the year of the appearance of "Marmion," and five years before the first of the Waverley novels. As a specimen of these tracts, let me suggest the perusal of Sir Roger Williams's "Account of the Wars in the Low Countries," where centuries earlier the British Army, according to Froissart, swore so terribly. On page 39 of the first volume you will find a report of the speeches of Henry VIII., Queen Catherine, and Cardinal Campeius in the divorce proceedings before that wily person and Wolsey. But I must not linger over these inviting volumes.

Almost equal in interest is the so-called "Harleian Miscellany," another enormous collection, collected by Oliver the antiquary from the library of Edward Harley, second Earl of Oxford. It comprises nearly 700 rare tracts. A glance at the index will show the varied nature of the contents. Among them I may mention the speech of Queen Elizabeth to her last Parliament. No more regal utterance is to be found in the language, or one showing a more just appreciation of the duties and responsibilities of an exalted station, or you may read here an account of the well-known secretary, Ludowick Muggleton, and how he "slid out of one religion into another." We have but two recognisable books from Beckford's celebrated library at Fonthill. One of them the "History of Framlingham," the other a small guide to the city of Hereford. Both derive interest from the fact that they are annotated on their fly-leaves by Beckford's own hand, showing that he was not a mere collector, but a diligent student of the books he acquired. Among the many curiosities in the library is a little duodecimo volume entitled "The Compleat Lawyer" by William Noy. The feast of compressing the whole body of law within 117 small pages strikes one as surprising. It is perhaps explained by the fact that the author was more skilled than most men in making money results by small means, for it was he who, as Attorney General to Charles I., framed, and it is said suggested, the ordinance for the laying of ship money, which cost the King his head and the kingdom a sanguinary internecine war of nine years' duration. We have an excellent copy of the seventh edition of "Coke upon Littleton," printed partly in black letter. Dated 1672, it is, perhaps, next to Justinian's "Institutes," the best-known law book in any language. It contains a quaint portrait of Sir Thomas Littleton himself (temp. Ed. IV.). We have also a fine black letter copy, printed in 1583, of Littleton's original work, "The Tenures," on which Coke has imposed himself so enduringly. Among our most valuable possessions is Bracton's great work, "The Laws and Customs of the English People." It is remarkable not only for its vast learning, but as an early and splendid specimen of the printer's art. This great treatise was published in 1569. It is described by Sir William Jones as "the best of judicial classics." Ours is an original copy, and, though nearly 350 years old, might have issued yesterday from the press of Richard

Tothill. I may mention that Tothill lived on the south side of Fleet street, a few doors inside Temple Bar. He is well known to Bibliophiles as the printer of the poems of the Earl of Surrey, splendidly reproduced in one of the volumes of "Arber Reprints" which I commend to all lovers of literature.

Our library is in many respects unique, rather less known as "zoology," but contains some notable books on the subject. One of the best I say it without puritany because drawn from unimpeachable sources is Professor Thorold Rogers' "Six Centuries of Work and Wages," which vividly depicts the condition of the common people from the thirteenth century to the present day. Other works of the kind, though much inferior as a point of accuracy, are Eden's "State of the Poor," published in 1817, and "Progress of the Nation," neither of which the student of social economics can afford to neglect. It is a satire on our boasted place in the universe that this man, who dealt with such portentous problems, died from the sting of a gnat.

We are also not very rich in books on architecture, perhaps rightly so, but I should like to direct your attention to two of them—Wren's "Parentalia," and Pugin's "Contrasts." The former is a history of the family of Sir Christopher Wren, written by his son, the second Sir Christopher. Wren was not only a great architect perhaps the greatest since Bramante) but a great scientist, for he was Savilian Professor of Astronomy in the University of Oxford, and a President of the Royal Society. On page 274 is a most interesting account of a survey of St. Paul's Cathedral, made by Wren a few months before the Great Fire in 1666. This should be read in connection with a report by him after the fire, which will be found on page 247 in Elmes' admirable biography of Wren, also in the library. A. Welby Pugin's "Contrasts" strikes one at first as an ill-natured pictorial skit on contemporary architecture. It is not really so, being only an appeal to the eye, against the degradation of his beloved art. His plan is to place side by side modern and ancient examples of buildings for similar purposes, very much to the disadvantage of the former. As you have heard it said by those who knew him that this great artist never used a T-square, and rarely supplied the builder with a working drawing, the poor man having to content himself with rough sketches in charcoal, on the nearest plane surface available.

Let me call your attention to a little "History of Newcastle-upon-Tyne" for the sake of its frontispiece, an undeniable product of the burin of Thomas Bewick, recognisable at once, by the instructed eye, by the masses of ancient wood left to form the deeper shadows. These who have a fancy for ancient Itineraries should look at William Burton's "Commentary on the Itinerary" (first published in 1658) of the Roman Emperor Antoninus Caracalla (186-217) and Antoninus Pius, as is generally supposed. It contains the whole story of the Roman Government of Britain in the third century. It is a book much beloved of antiquaries—by the learned Selden, most of all. Among later devotees of the history, the curious itineraries through Wales, in 1188, of Baldwin, Archbishop of Canterbury (1184-1190). It appears in the Library Catalogue under the name of De Barri, who accompanied Baldwin on his travels. Later still, the travels in England and elsewhere of Csesmo III., Grand Duke of Tuscany, who visited this country in the reign of Charles II. The principal interest of the book consists in a large number of views of English towns and cities in the seventeenth century, and the records it contains of many quaint habits and customs of the time by a contemporary observer. The view of the Banqueting House, Kingsgate, and the adjoining houses is particularly interesting. We have a copy of the third edition of the admirable itinerary (1534-1542) of the learned John Leland—that prince of antiquaries. The book was written to form a New Year's gift to King Henry VIII. It is doubtful whether Henry's matrimonial preoccupations left him much leisure

for the perusal of a work in eight volumes, its tastes find more in the direction of the new and attractive than the old and decayed. The book forms the foundation of nearly all subsequent writings on our national antiquities. It will be observed that Leland's travels covered the exact period of the suppression of the greater monastic houses, and it is a fact said of him that his commission to explore their records did not extend to their acquisition, so preserving them from destruction by accident or design in those nefarious times. Peter Leland died incane, and his book, we have some excellent examples. The Roman roads appear in detail in Reynolds's "Iter Britanniarum," which is in point of fact a commentary on the itinerary of Antoninus already referred to. It contains an excellent map of the Roman roads in Britain. We have also another road book engraved text and illustrations on 110 copper plates, a most costly production entitled Ogilby's "Britannia," which was the direct predecessor of Putter's well-known book. Patterson's "Roads of England and Wales," published in 1771, enjoyed an extraordinary popularity, and passed through many editions. It was in immense demand in pre-railway times. We have a copy, dated 1781, of the sixth edition, and another copy greatly enlarged by Mogg, which came out just before the disappearance of the mail coaches. The advent of the automobile has given the book a new lease of life, and it is again in great request.

I have referred in another paper to Captain John Graunt's "Observation on the Bills of Mortality of the City of London." The real author was Sir William Petty, whose name is so familiar to readers of "Pepys' Diary." It is, so far as I know, the first attempt to establish a theory of vital statistics. The division of the population into "breeders" and "feeders," in other words breadwinners and dependants, seems rather rude to the modern mind. One fact comes out of his study, namely, that in the seventeenth century the population of the city was kept up entirely by immigration from the country, which was also the case with all the large towns, noticeably so in Bristol and Winchester. The author gives an amusing description of the way in which the Bills of Mortality were "made and composed." He says: "When anyone dies, then either by tolling or ringing of a bell or by bespeaking of a grave of the sexton, the same is known to the searchers. The sexton, the searchers, and the ancient matrons repair to the place where the dead corpse lies, and by view of the same, and by other inquiries, then examine by what disease or casualty the corps died." No wonder if, after such an inquest, so many were said to have died from "wolf," "rising of the lights," or were "planet struck," or "burst." The subject of population leads me by an easy transition to the celebrated Essay by the much misunderstood and much maligned Thomas Malthus, beloved of J. S. Mill, and detected by Cobden, and whose name has given an adjective to the language. His "Essay on Population," which is in the library felt like a thunderbolt on a generation taught from pulpit and forum that fecundity and patriotism were interchangeable terms. The essay itself is a perfectly innocent attempt to prove that population, measured by the laws of increase as then understood, had a tendency to overtake the means of subsistence as deduced from the available stock of food production,—that population increase in an arithmetical, and food in an arithmetical ratio. He was not right even within his own premises, for he left out of his calculations the checks supplied by moral restraint and by the fear of social degradation following upon self-inflicted poverty. Nor could he foresee the day when mounds in England would be linked by steam with food in America and India. The work was profoundly philosophical and characterised by a moderation and self-restraint, but it raised a storm of abuse that has never been equalled in the annals of vituperation. To Cobden he was "the im-

pious Malthus," "the monster Malthus," "the diabolical Malthus," "the beastly Malthus," and so on through all the gamut of reprobation. Later on Malthus modified his views, softening some of their austerities, and a later generation has accorded him the justice he was denied in his own.

There is a queer book in the library, published in 1633, entitled "Mattheus de Auctionibus," which, being interpreted, is "Matthew on Auctions." Latin was the language of the rostrum in ancient Rome, but I am not aware that it biddings took place in that language in the time of Charles II. Its principal interest, apart from its antiquity, consists in a reference to auctions held *sub hasta* (literally under a spear planted in the ground) of the spoils taken in war.

In order that the fact may be on record, I may here state that this very house in which we are assembled has a literary history of its own. Here it was, at No. 13, Great George-street, incorporated in our building, that John Wilkes, patriot, buffoon, and libertine, wrote the famous No. 45 of the "North Briton," and from which he was dragged to imprisonment in the Tower. What is now known as the "Members' Room" on the ground floor was his dining-room, and I have no doubt that its beautiful chimney piece dates from his time. I need not commend to your notice the "Annual Register," complete from 1758 to the present day. Also the "Gentleman's Magazine." For the first thirty years the Annual Summary in the former was written by B. and the "Gentleman's Magazine" was published by Cave in 1731. He was the first to publish what purported to be reports of the Parliamentary Debates. As is well known, they were the work of Johnson, performed by means of the then undiscovered science of telepathy. This deception is the only blot on the fair fame of the moralist. I imagine that few have ever seen, though everyone has heard of "Cocker's Arithmetic"; "According to Cocker" is an epithet of contempt. The work was first published in 1677, and my copy is dated 1695. Between the earlier date and 1720 it passed through thirty-seven editions. It is impossible to imagine the suffering this book must have inflicted meanwhile upon many generations of boys. It was claimed for it as a merit that it excluded all reasoning and demonstration—why, it would be hard to say, unless such adjuncts were regarded as beneath the dignity of the subject. The book still survives, by metempsychosis, in the works of many late tormentors of youth.

We have a complete set of the excellent photo-lithographic reproductions of "Domestick Day Book," or "Inquest," as it is more properly called) published by the Ordnance Survey authorities. Its interest is greatly enhanced by a previous perusal of an excellent treatise on it by Mr. Adolphus Ballard, which is also in the library. This great survey of the whole kingdom took but nine months to execute. Tempora mutantur, and Francis Grose's "Antiquities of England and Wales," in eight folio volumes is formidable reading, and more useful for reference than perusal. He was the convivial gentleman to whom Burns refers in his ode "Frae Maiden kirk to John o' Groat's." Few would care to turn over the pages of our fine copy of the "Statutes at Large," yet there is much in struction to be gleaned from them, reflecting as they do the passing passions of the day, and the groppings of many generations of men tawdling the light which shines with such dazzling splendour in our incomparable age, where the future can be trusted, happiness and contentment is about to be the lot of all, without the necessity for any personal exertion worth mentioning. It is, of course, impossible, within the limits of the time at my disposal, to pass in review more than a few of the books to which I should have been glad to refer, but I hope I have said enough to show how rich our library is in works, which should appeal to every educated man. I can speak from experience, for I am familiar with them all, except, perhaps, five per cent. of them, which I have merely a nodding acquaintance, which, if I can help it, shall never ripen into intimacy.

REALISM IN ART.

Sir W. B. Richmond, R.A., in his valedictory lecture on Friday as Professor of Painting at the Royal Academy, explained that he was retiring because he thought he had post he had occupied there should be occupied by a younger man, more in touch with modern tendencies. He had shown in the course of his lectures that he regarded the art of painting to be, while primarily an emotional art, an art which had its first place through out vision. But he also insisted that it was, and ever must be, an expression of mind. The first place in art, he claimed, was realism, not realism as contrasted with idealism, but as essential to an art which visualised what enchanted the mind as well as the eye. He had also laid stress on the indisputable fact that directly the study of Nature became slack, art declined to mannerism, or, still more unwisely, to symbols which people had outgrown. Students, he must learn to draw accurately, what they saw reverently and intensely, not cleverly and empirically; they must admit science to help them, and regard their art as partly good craftsmanship and partly an emotion inspired by beauty and not degraded by ugliness, however much they might be misinformed by writers who would be peculiar for the sake of notoriety. He had felt it a duty to them and to the Academy to whom they belonged to protest against the heresies and follies accepted by young English Post-Impressionists who had been taken in by sophistry and arguments at once specious, fallacious, and enervating.

He warned students against the insidious progress of a disease which had been brought here from the purities of French decadent art, against follies which in the first place induced alienation, then excessive vanity, loss of high aims and self-control, loss of mental balance, and perhaps lunacy. Let them resist a corrupt fancy, influenced by fashionable jargon, that Paris was the only place where they would find satisfaction, among the vagaries of a light but clever people, whose moods were as spasmodic now as ever. Let them rather go to the fountain-head, whence all schools, French, Italian, English, German, had drawn pure water, and stimulate their thirst for noble beauty in painting, from Cimabue to Tintoretto, and from them to Ingres, Corot, Reynolds, and Watts. Having shown that all great artists were realists, the lecturer asked whether it was conceivable that Titian or Velasquez would for one moment have accepted as great, or even as art, much of the rubbish which was thrust upon us by a horde of barbarians, who recently landed on their shores. "Emotion" was now the catchword, as was the word "values" some time ago. Emotion led to hysteria and thence to the lunatic asylum. It was the antithesis of restraint and a sapping poison for manliness. The student should put little trust in his emotion, save inasmuch as it impelled him to labour. In wishing them farewell he did so in words he would never have used in the presence of his hearers. They were Plato's: "Beauty is the clearest, the most certain of all things, the most lovable." This is what they had to realise and transmit.

A church-room at Fifeshead, Neville, Dorset, built from plans by Mr. J. Allner, architect of Bournemouth, has been opened by the Bishop of Salisbury.

A new council school has been opened at Heolcwyf, Mr. D. Pugh Jones of Cardiff, was the architect and Mr. W. A. Jones, of Barry, the contractor. The cost was £3,400.

In the case of the application made on behalf of Tom Maggs, late Eldon-road, Cardiff, but now residing at Clive-road, Cardiff, builder, an order of discharge has been granted, but is suspended for three years.

At the monthly meeting of Harbour Trustees for Liverpool a recommendation to construct a new deep-water wharf 400ft. long was agreed to. The probable cost will be from £8,000 to £9,000. It was also agreed to proceed with the repairing and strengthening of the existing wharves at an estimated outlay of £1,000, and to purchase a new crane at an expenditure of £200, including rails laid on top of wharf.

CURRENTE CALAMO.

The Society of Architects has issued the following notice: "The proposals for the fusion of the Society with the Royal Institute, particulars of which were recently sent to every member of the Society, were considered at a special general meeting of the Royal Institute on January 8, when a resolution to approve of the agreement between the two Councils was met by an amendment to refer the whole matter back to the Council of the Royal Institute, which amendment was carried by a large majority. The Council of the Society now await a communication from the Council of the Royal Institute regarding the situation which has arisen. This may mean a reopening of the negotiations between the representatives of the two bodies. The representations on the matter which have been received from some of the members of the Society have been noted for consideration by the Council of the Society, who, as soon as they are in a position to do so, will make a further statement. Members are asked meanwhile to keep an open mind on the subject." A very proper request, which we hope all concerned will bear in mind.

We should have been glad to have given a fuller report of Mr. Maule's excellent paper, read on Wednesday night before the Manchester Society of Architects, on "Architectural Education." With his views as set forth in the abstract we give, we need hardly say, we almost entirely agree. It is useless to try to "educate" specialists—not in architecture merely, but in any other art or science—till you have established a broad basis of solid general knowledge in the mind of the student; and it follows that, as specialisation is increasing, the longer it will take the average student to finish his apprenticeship. We do not know how this view commended itself to Manchester men, or whether Mr. Maule's paper was adequately discussed. The Manchester Society—this session, anyhow—has been fortunate in its lecturers and subjects, which have been distinctly above the general average. That given by Sir Charles Nicholson on the 17th inst., of which we also give an abstract, must have been especially interesting.

One awaits with some curiosity to learn the details of the scheme for a 'House of Retreat' for architects, which M. Lucien Leblanc, a Parisian architect, is about to exhibit to the French Central Society of architects. Whether it is almshouse, hospital, home of rest, or something else, does not yet appear. Possibly the idea is simply to arrange opportunities for spiritual refreshment and calm meditation of the kind of which our friends the clergy avail themselves with such advantage in the intervals of their lifelong battle with the world, the flesh, and the devil. Here, perhaps, we might follow suit with benefit, and retiring for a week-end now and then to the ecstatic contemplation of the purely æsthetic attractions of our vocation, learn amidst the disturbances of current architectural politics to "play the game," as Mr. Perks admirably phrases it elsewhere in our columns to-day; and, if we might add the words, as gentlemen.

The intimation by the District Surveyors' Association this week, in our Correspondence columns, of its issue, under

the London County Council General Powers Act, 1909, of a basis of uniform calculations for skeleton framework buildings, is a timely and welcome one. It will reduce the labour of all concerned in making and checking the calculations, and the convenience of being able to obtain the requisite forms, as indicated, will be appreciated. The scheme is issued in co-operation with the Royal Institute of British Architects, and fully embodies all the requisitions of the Act above referred to.

The 'Battle of Edwardes-square' has ended before the House of Lords in a complete and well deserved victory for the residents, whom all will congratulate on having secured the use of their three-acre garden for ever. We are very glad the talked-of compromise never came to anything, and that the residents' committee had the pluck to fight to the finish. The ordinary householder is so used here in England to submission to the invader, that it is well he should learn that, impotent as he may be single-handed before the aggression of ground landlords and powerful syndicates, there is still the law to appeal to—if he can get mutual help to pay for it, and can last out the advantage it offers to the wealthy opponent who can exhaust its delays and face its uncertainties. It may very well be, of course, that the building company that sought to cover Edwardes-square thought it had acquired the right to do so. We do not know; but we are very glad it has been defeated, and the more so because of the fashion in which it began operations.

Had might triumphed, we fear we should soon have heard of similar attempts to wrest the amenities of more of our pleasant squares from those who legitimately enough enjoy them, and the general public who benefit by their beauty. For once the speculator has been taught that, no matter how good a bargain he may think he has made, Acts of Parliament made to protect those over whose rights he attempts to ride roughshod are not quite waste-paper yet. We trust some memorial will be instituted to record the victory, and that it may hereafter inspire many another bold resistance to lawless proceedings of the sort with which the "Battle of Edwardes-square" began. For the residents therein—many of them held their houses on short leases—have really fought quite as valiantly and as well for all of us as for their own hands.

The Wellington monument in St. Paul's is at last completed, after forty-five years' blundering and delay, almost entirely due to Mr. Ayrton, who tried to cut down Stevens's remuneration by £6,000, and harassed him with impossible conditions. It was not till some years after Stevens's death, in 1875, that the monument was set up—hidden away in a side chapel. At last, thanks mainly to the remonstrances of Lord Leighton, it was removed to its present position, and now the equestrian statue, copied after the model in the Tate Gallery, has been completed by Mr. Tweed. The result, as a whole, is satisfactory, and the apprehensions of some who feared that it might have been otherwise will be dispelled. At any rate, the memorial is complete in form as its author conceived it, and will, we trust, endure as long as the cathedral, perpetuating the fame of the great

soldier in whose honour it was designed for years to come in less satisfactory fashion the procrastination and petty bickering of those who were not worthy to carry off the effect the nation's tribute of remembrance.

The dedication of the Bunyan Window at Westminster Abbey yesterday, a ke emblemises the wise broad-mindedness of Dean Armitage Robinson, one of the most sympathetic of the custodians of the great church, which enshrines the memories of great Englishmen of all faiths, and the marvel of fact that—Milton alone excepted—no other man has so dominated the popular theology of the English masses as the Bedfordshire Tinker. Mr. Comper has well selected the scenes in the immortal romance which for more than two centuries have stirred the imagination of the young of all sects, and redeemed Puritanism from the narrowness of the mere sectary. In very truth, the visions of John Bunyan were outside of and beyond, all the sects, and none who have attempted to make his parable the vehicle of their own particular dogmas have succeeded any better than the High Church parson, who, as Maugham reminds us, published an edition explaining the Wicket Gate as Baptism! And amid all the signs of the times there is none more convincing than that however indifferent to the letter of the tenets of the Tinker the world is growing the ideals of the great fight against evil still appeal to those as cruelly beset as ever the Pilgrim was by Apollyon, and inspire the helpful to raise up Houses Beautiful along the perilous road, and minister therein to the weary and discouraged, with true piety, prudence, and charity.

One could almost have wished that the organisers of the "Puritan Pageant," which is to open on Feb. 12 at the Royal Horticultural Hall, had contented themselves with the "Pilgrim's Progress" for their repertoire. Many of the subjects selected are, no doubt, worth remembrance, but such episodes as "John Penry and the Pilgrim Press," the "Ejection of the Rev. Jeremiah Lewis," or "John Wesley and Beau Nash," will waken sympathy to a far less extent than if "The Arrest of John Bunyan" had been accompanied by a short series embodying the more stirring episodes of Bunyan's book. Still, the fact that a "Puritan Pageant" is possible to-day is, perhaps, the best evidence of the growing influence of the broad human sympathy which must have animated Bunyan himself. Those of us at all intimate with the inner life of Nonconformity fifty years ago will, we fancy, be of opinion that "Pageants" in those days would have been regarded with still more distrust and dislike than even some of Bunyan's weaker brethren of his own day manifested in regard to his tales of beautiful damsels succouring errant knights, and reminiscences of the mere carnal strife of the author's own old soldier days.

The take-over of the telephones by the Post Office is hardly signalled as yet by any great access of celebrity at the exchanges, and the alterations in the Directory confuse users. Why some of us are left out altogether we do not know. One contemporary, we notice, is among the deleted, and has to advertise its number daily. Another—the *Manchester Guardian*—declares that a commercial man, rash enough to make a telephone trunk call when exceedingly short of time, found, when

he spoke, that he had been put on to the wrong number. This was the more exasperating and vexatious as the number he wanted was the simplest possible—No. 1. To shortness of time thereupon he added shortness of temper and somewhat angrily complained to the operator of her mistake. "What I want," he finished by declaring, with savage emphasis, "is one on the trunk!" and the operator, who evidently knew some slang—probably she had brothers—retorted, quietly, "Yes, you do."

ETHICS AND IDEALS OF SCULPTURE.

Professor W. R. Colton, A.R.A., who is about to retire from the position of Lecturer in Sculpture at the Royal Academy, is delivering a final course of four lectures on "Ideals and Ethics in Sculpture." In the first of these closing addresses, given on Monday afternoon, Professor Colton expressed his regret at the present tendency of ornament to run riot in our public buildings—a tendency which he traced back to Sir Christopher Wren, and proceeded to animadvert upon Post-Impressionist sculpture fashionable in certain quarters just now. He then passed on to consider the public monuments of London. Generally speaking, England was a country of great intentions which were rarely carried out. Our bridges were left without ornamentation, and the art of sculpture was neglected by the public authorities. The public, too, were to blame for showing so little respect towards the works of art in our parks and thoroughfares. People said that our climate was unsuitable for statuary; but the Albert Memorial showed that where reasonable care was taken of it, this was not the case. Undoubtedly the memorial was poor as regards elevation, while the use of a variety of materials made it over-gaudy; but in his judgment the sculptural work of Mr. Armstrong was exceedingly fine. Foreign capitals were greatly superior to our own from the artistic point of view, and in this direction he instanced the fine decorative approach to the Pont Alexandre III. in Paris. It was to be hoped that when the new St. Paul's Bridge came to be constructed, the authorities would rise to the occasion. Our fault was that as a nation we were too utilitarian. It was amusing, as he throwing light on the popular attitude in this country towards art, to note the suggestions which were made to perpetuate the memory of King Edward. One proposal was that Nelson should be taken down from the column in Trafalgar-square, and that a statue of the late King should be put in his place; another was that the front of Buckingham Palace should be repaired; another that consumption hospitals should be erected; while, of course, our old friend the Crystal Palace showed great vitality on that occasion. The English grudged money for objects that appealed to the decorative sense alone. They failed to realise that miserable surroundings made miserable human beings. The new decorative objects we had in our thoroughfares were neglected and allowed to become coated with soot and sulphuric acid. As a nation we had become drab grey, and all through the continual outcry in favour of utility.

SHEFFIELD TOWN PLANNING SCHEMES.

AN ARCHITECT'S PROTEST.

At the town hall, Sheffield, on Friday, Mr. Thomas Adams conducted a Local Government Board inquiry into the corporation's application for authority to prepare town planning schemes for the three areas within the city's boundaries. These areas are at Greystones and Bannerdale 489 acres, Sandy gate 104 acres, Earth Park, Wincobank, and Shiregreen 227 acres.

During the inquiry Mr. E. M. Gibbs, F.R.I.B.A., who is a member of the advisory committee associated with the town planning sub-committee of the Sheffield Corporation, made a protest. When the Greystones and

Bannerdale scheme was being discussed Mr. Gibbs asked that a certain piece of land at present outside the area of the town-planning scheme should be included for the purpose of providing a much-needed ring road. The town clerk said Mr. Gibbs's suggestion had been carefully considered, but it had not been adopted because the Local Government Board had already objected on the ground that too many buildings were included in the areas submitted. Mr. Gibbs's suggestion would mean the demolition of a number of new buildings at an enormous cost. Mr. Gibbs retorted that he was supposed to be a member of the advisory committee, but, he added, "I am never called to the meetings and am not allowed to attend." The town clerk strongly objected to this remark, saying they appreciated the help which Mr. Gibbs had given to the corporation. "But," he said, "Mr. Gibbs, although not a member of the city council, aims at being a constant member of the town planning committee, and exercising the functions of that committee without being a member of the council, and that cannot be done.—The Inspector: This has really nothing whatever to do with the inquiry.—Mr. Gibbs: I think it has. If they won't listen to it I think the Government should. He added that on the one occasion during two years when he was called to a meeting of the town planning committee, he and his colleagues on the advisory committee were placed with their backs to the plans, and no report had been submitted to them. The Town Clerk: We have not asked for your formal proposal. I know that.—Mr. Gibbs: No; you made a cat's-paw of me. The Inspector said the matter must be settled between Mr. Gibbs and the Committee."

PROFESSIONAL AND TRADE SOCIETIES.

GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—A lecture was given by Mr. James McKissack on "Rothenburg," on the Tauber, and other Bavarian towns, and a great number of excellent slides were shown proving its claim to be called a "City of Dreams and Fairy Hills." The lecturer also gave a short description of other interesting towns, including Harburg, Dinkelsbühl, etc.

ROMAN CONCRETE VAULTS AND DECOR.—As a member of the Midland Section of the Institute of Sanitary Engineers, at Exchange Hotel, Birmingham, on Tuesday night, Mr. G. Salway Nicol, A.R.I.B.A., read a paper describing the methods adopted in constructing the great concrete vaults and domes, the remains of which are to this day conspicuous in and around the Roman Forum. These wonderful constructions, he said, were particularly interesting at the present time, as architects and engineers were now largely using concrete in place of iron and steel. Concrete was the most durable of all building materials, and in Roman times it was used in conjunction with brick ribs, and in the present day its use was reviving, reinforced with thin steel bars. In Birmingham were many examples of this method of building, such as the new buildings now in course of erection in New-street, and in much of the work at the new railway station in Moor-street. The water supply and drainage system of Rome was that on which methods of to-day were founded. The ancient city, however, enjoyed a much better water supply, and the Roman baths and public buildings in connection with them for the development of physical and intellectual life had nothing approaching them in any modern city. The design, construction, and equipment of these remarkable buildings had much to teach those now working for the improvement of many branches of civic life.

Sir Charles Wakefield has presented a portrait by Sir Godfrey Kneller of Archbishop Tillotson to St. Paul's Cathedral. It will be hung in the library. Tillotson was at one time Bishop of Exeter, and in 1699 became Dean of St. Paul's, till his appointment to the Archbishopric of Canterbury in 1691.

COMPETITIONS.

COSELEY.—At a meeting of Coseley Education Committee, on Tuesday night, the Sites and Building Committee reported that they had received a report from Mr. Arnold Mitchell, architect, London, who was appointed assessor in the competition for plans for the proposed Parkfield Council School. Mr. Mitchell notified that he had no hesitation in placing design "No. 36" first in the competition, and giving the second place to "No. 32." The secretary, Mr. F. Poole, stated that the design placed first was that of Messrs. Even Harper Brothers, of Birmingham, and that "No. 32" was by Messrs. Cleland and Hayward, of Wolverhampton. The Committee decided to appoint the first named firm architects of the new school, and to pay the second prize of twelve guineas to the firm placed second. The secretary was instructed to advertise for tenders for the work.

EDINBURGH: THE SCOTTISH NATIONAL MEMORIAL TO KING EDWARD VII.—The following six selected architects have accepted the invitation of the executive committee to send in designs for the Scottish Memorial to the late King Edward VII.: Edinburgh, Mr. Hippolyte J. Blanc, R.S.A.; Mr. G. Washington Browne, R.S.A.; and Sir Robert Lorimer, A.R.S.A. Glasgow, Mr. J. J. Burnet, A.R.S.A., and Mr. H. E. Clifford, F.R.I.B.A. Inverness, Mr. R. H. Macbeth. The memorial is to be associated with Holyrood Palace and its surroundings.

HALIFAX.—Professor Stanley D. Adshad, A.R.I.B.A., of the Department of Civic Design at the Liverpool University, has made the following awards as assessor in connection with the competitive designs invited from local architects by the Halifax Corporation for town-planning designs. First premium of 100 guineas, Messrs. Longbottom and Culpin; second, of thirty guineas, Messrs. Medley Hall and Son; and third, of twenty guineas, Messrs. C. F. L. Horsfall and Son.

ROCHDALE INFIRMARY EXTENSION PLANS.—Eleven sets of plans and designs for the proposed extension of the Rochdale Infirmary were recently sent in by nine firms of architects. Without opening them the Building Committee of the Institution forwarded the plans to Mr. Alexander Graham, F.S.A., F.R.I.B.A., of London, in his award in connection with the competition. At a meeting of the committee on Friday night Mr. Graham's awards were made known as follows: First, Mr. Hugh Healey, of the firm of Jesse Horsfall and Healey, 25, Drake-street. Second, Messrs. Sykes and Evans, of Rochdale and Manchester. Third, Messrs. S. Butterworth and Duncan, South Parade. The premium attached to the first award is 50 guineas, to the second 30 guineas, and to the third 20 guineas. Arrangements are to be made shortly to exhibit the plans to the public.

WINNIPEG.—In the international competition for legislative Buildings for the province of Manitoba, to be built at Winnipeg, it is satisfactory to be able to state that the protests raised against the shortness of the time allowed for the preparation of designs have been successful, and the date for the reception of plans has, according to a cablegram received by the Secretary of the Royal Institute of British Architects from the Manitoba Minister of Public Works, been extended to March 31.

Sanction has been received from the Local Government Board for the new Rural District Council Manure Works, £19,940 for sewerage and sewage-disposal works for the parishes of Herno and Recliver.

The memorial-stone of a new municipal school erected by the Manchester Education Committee in Atherton-street, Quay-street, was laid on Friday. It will be the fifty-first school erected by the Manchester Education Authority, and intended to replace three old schools which had ceased to meet the requirements of the Board of Education. It will provide accommodation for 760 children.

Our Illustrations.

CHOIR, VIEWED FROM THE

TRASCORO, LEON CATHEDRAL, SPAIN.

We have already mentioned this picture when we reviewed Mr. Henry C. Brewer's exhibition of water-colours, shown by the Fine Art Society in their Bond-street galleries last November. The Cathedral is a very delicate and pure example of 13th-Century Gothic, so lightly built that nearly all the wall space is pierced and fitted with glorious old stained-glass in its beautiful windows. Its situation is so eminent that it can be seen above the well-wooded valley some hours before reaching the city, backed as it is by a range of mountain peaks lying away towards the north. Don Manrique, who held the Bishopric of Leon from 1181 to 1205, founded the present Cathedral; but he probably erected very little of the building, and nothing of the existing church seems to be so early as 1205, fifty years later being the earliest assignable date, judging from the fabric itself. The work from beginning to end is very French, in plan, general design, and in detail. During the "sixties" the southern transept was pulled down to save it from falling, and the disaster was completed when Senor Lavinia, an architect from Madrid, put up his incongruous new work in its place. Old Spanish architecture has had, in modern days, but few students, and the apprentice hands of native architects consequently are tried upon important projects of this sort, minor reparations being so few and far between. Amiens and Rheims are possibly the most like in style to Leon. The former dates from 1220-1269, the latter from 1211-1241. The chapels in the apse are polygonal, and not circular in outline, and the groining and arches in detail all correspond, the ribs being nearly the same, so that the remarkable resemblances between the Spanish work at Leon and Amiens and Rheims, and at St. Denis also suggest a common origin, and so are worthy of note. The parallel, too, between Beauvais and Leon in their architects' endeavour to secure lightness of construction and height, tells in favour of the assumption that the design of Leon was due to a French design rather than to Spanish, particularly as there were no other churches in Spain at that time which could have inspired a native architect to try his skill in this way with so sudden a development as this design illustrates. Scarcely a yard of plain surface remains unenriched anywhere: all the walling is pierced, and space is obtained by unusually large windows for the glorious glass which fills them. In England over-fenestration is a mistake; in Spain such excess of windows is inopportune. Undoubtedly this church ranks among the noblest in Europe. Its detail is rich and beautiful throughout, the windows having particularly good traceries. The east end shown in Mr. Brewer's drawing is more striking than the west. It retains almost all its old features intact, save that externally the roof is now very flat and is covered with pantiles instead of having the old high-pitched roof. The church stands well up above the boulevard which skirts the east end. The total length of the interior is 300ft. The width of the nave and aisles is 83ft. The height to the springing of the main arches is 25ft. 6in. The height to the triforium level is 46ft. and to the centre of the groining about 100ft. As compared with some French churches doubtless these dimensions are unimportant, but are still very noble, and far higher than the main part of the cathedral. The characteristic of English buildings of this kind, they leave us far behind. In this case the height of the clerestory outside seems excessive, unduly towering up from all points of view. The lantern-like character of the interior is very remarkable for its harmonious design and completeness of idea which, no doubt, was venturing some beyond all precedent at the date of its inception. Built with such daring, and of stone facings filled with rubble, without good bonding masonry, there remains little

wonder that the southern transept became dangerous and had to be taken down.

A BYZANTINE CAPITAL. DRAWN BY PROFESSOR LETHABY.

This drawing was made as a restoration of a fine capital of the 6th century in the Gizeh Museum, Cairo, from a photograph published in the Catalogue of Christian Antiquities in that museum. The capital is a good deal impaired, and its beauty is, therefore, not at first apparent in its full degree. There would have been a heavy abacus, or bearing-block, above the sculptured capital.

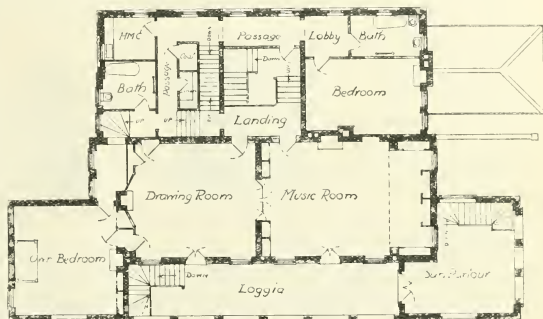
W. R. LETHABY.

HOUSE AT ENGLEFIELD GREEN, SURREY.

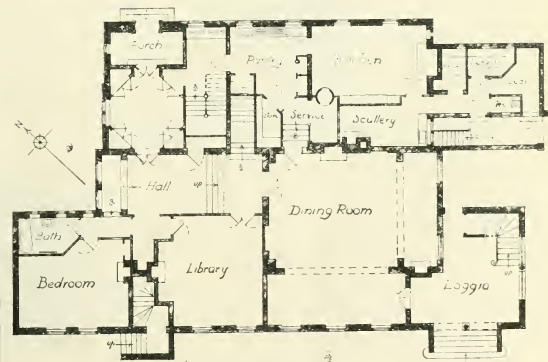
"Comely Bank." Englefield Green, Surrey, is being built on a pleasant site facing south-

NATIONAL SILVER MEDAL DESIGNS FOR A LOGGIA AND TREATMENT OF STREET ARCHITECTURE.

Mr. Allart Douglas Hill, of Nottingham, won a National Silver Medal for these designs which illustrate an application of Renaissance detail to contemporary uses; and although they were made some time since, these façades are typical of the class of work still in favour with architects of this school. Colonnades invariably look well and greatly help the good appearance of almost any elevation; but, apart from the difficulty of police regulation of pedestrians, the adoption of this feature in front of shops hampers their lighting and obstructs their publicity. Architecturally considered, nothing could be better than a colonnade. The arcade provided for



First Floor Plan.



Ground Plan

west. The owner is Miss Sophie Weiss. The plan is the outcome of very especial requirements, principal among these being the upstairs sitting-rooms and loggia, with bedroom en suite, and the particular aspect of most of the rooms. The walls are built of brickwork cemented and coloured cream, with a pantile roof and crown glass in the more prominent windows. The name "Comely Bank" is derived from what used to be a very charming row of houses in Edinburgh. The builders are Messrs. Norris and Co., of Summingdale. Mr. H. S. Goodhart Rendel is the architect.

ST. LUKE'S CHURCH, GRIMSBY.

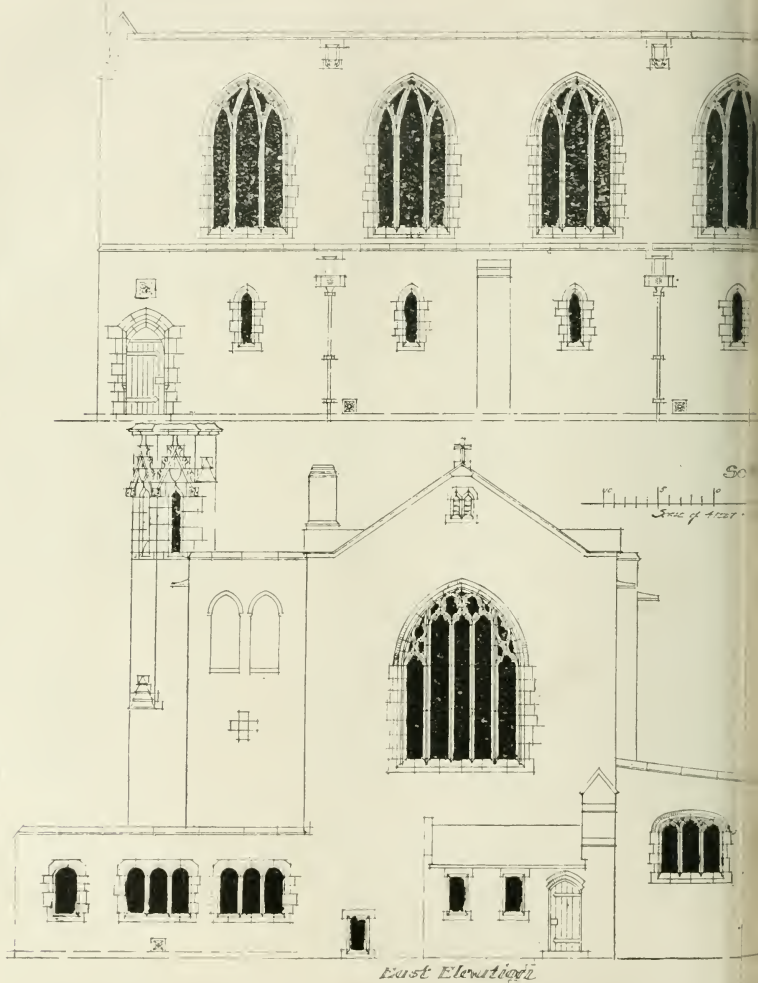
(For description and further sketches see page 143.)

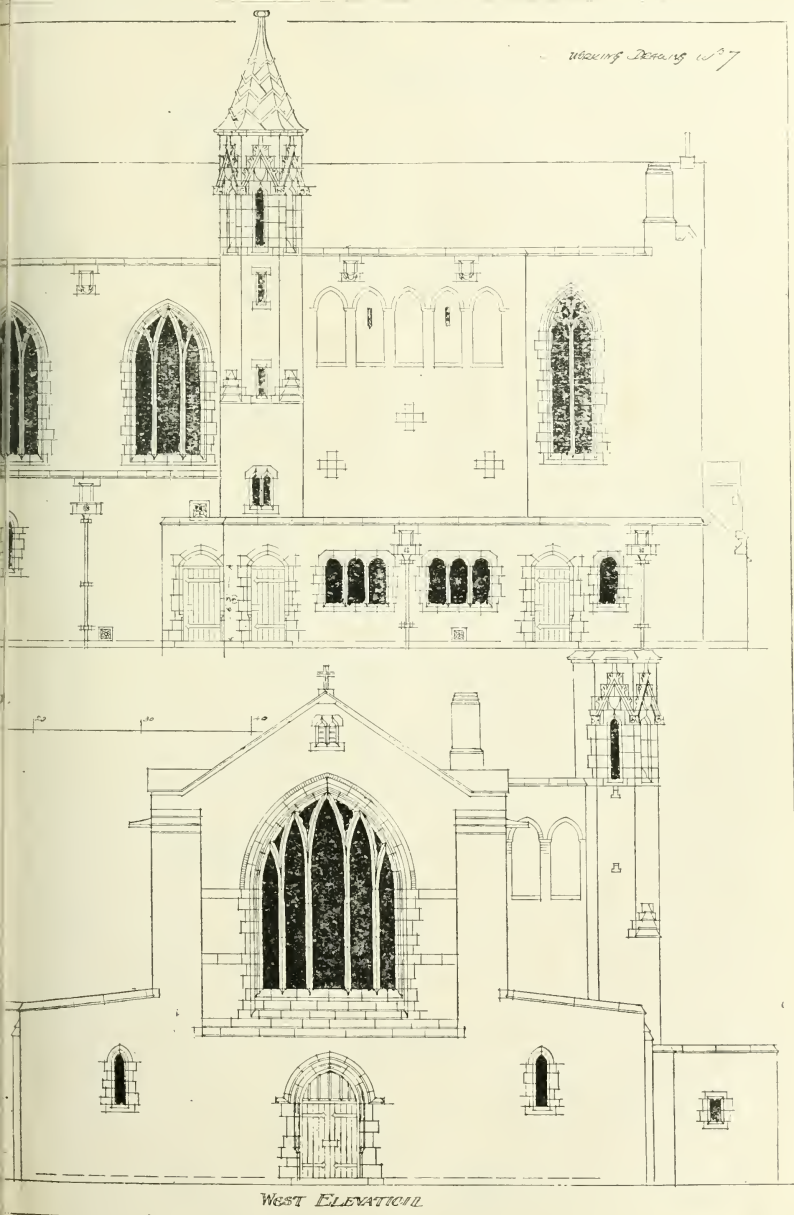
by Mr. Hill's scheme, in the centre of his block, follows out the same principle of colonnaded building, the termination of the arcade with a semi-circular bay, projecting as a colonnaded pavilion to break the frontage line, by way of emphasis, and furnishes a picturesque relief to a rectilinear elevation.

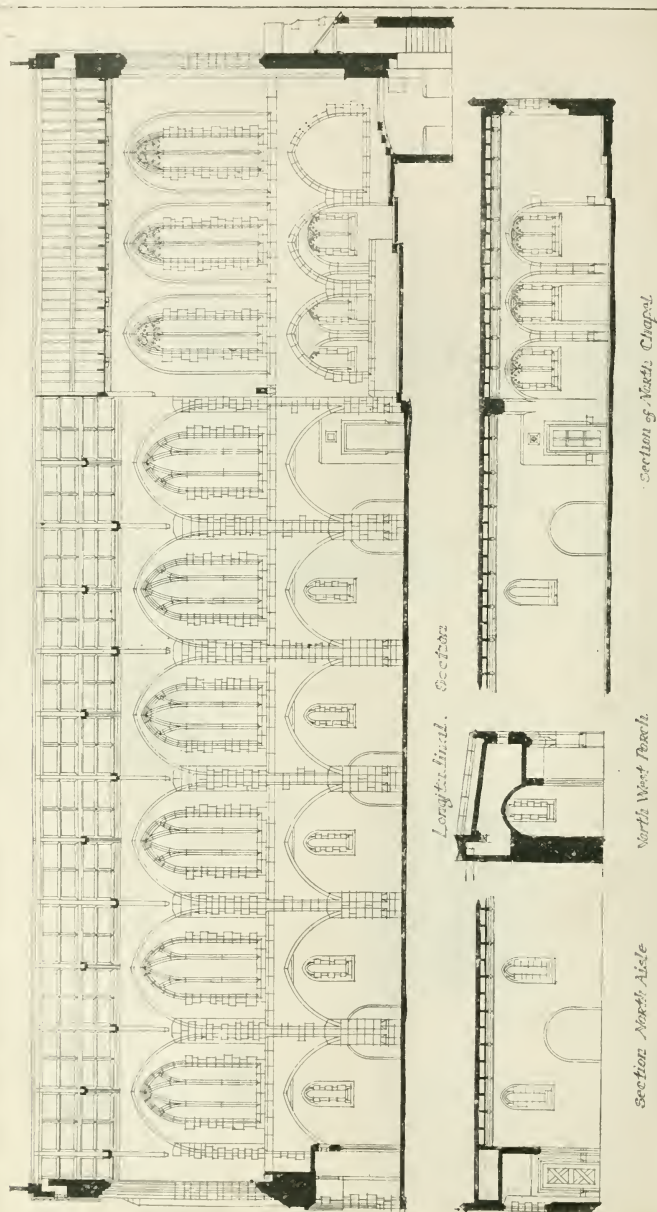
A new science laboratory is to be provided for Cranleigh School, Surrey, at a cost of £4,000, borne by Sir C. Chadwyck-Healey, K.C.

A village hall and reading-room has been built as a Coronation memorial at Wiveton, Norfolk. The walls are of red brickwork. Mr. William Weston, of Cley-next-the-Sea was the contractor.

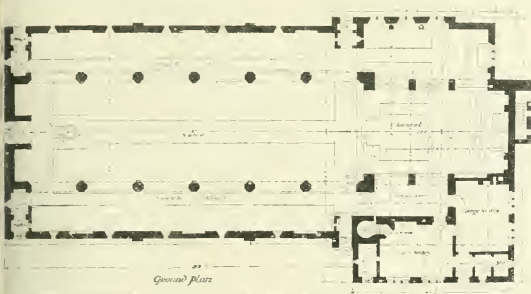
ST LUKES church GRIMSBY *







ST. LUKE'S CHURCH, GRIMSBY: MEMORIAL TO THE LATE BISHOP OF LINCOLN.—SIR CHARLES NICHOLSON, Bart., F.R.I.B.A., Architect.



ST. LUKE'S CHURCH, GRIMSBY.

ST. LUKE'S, GRIMSBY.

his church, which is of simple design, in order to suit the locality, is being built of cal brick, with Ancaster and Ketton stone essing. The foundations are of ferro-crete on the Coignet system. The church to seat 700 persons. The builders are Messrs. John Thompson and Co., of Peterborough, and the clerk of works is Mr. L. Nicholson, Bart. (Messrs. Nicholson and orlette).

Mr. William Orpen, A.R.A., has been commissioned by the council of the Royal Institute of British Architects to paint the portrait of our President, Mr. Leonard Stokes.

The Bishop of Chichester consecrated last week his new church of St. Matthias, Ditchling-road, Brighton. The church has been erected to supply a rapidly growing district in the parish of Preston, and, though not completed in every detail, is opened free from debt.

On Saturday, Mr. William Burn died at his residence, Bridge-street, Morpeth, aged forty-two years. He was a son of the late Alderman William Burn, who was mayor in 1883, and was his junior partner in the firm of Messrs. William Burn and Sons, cabinetmakers. He was also for three years a member of the town council, to which he was returned at the top of the poll in 1908.

At Purley, a new hall, built at the rear of the Congregational Church, was opened last week. It measures 74 ft. by 38 ft., and will seat 600 persons. The roof is open-timbered, and the whole area, by sliding partitions, can be divided or classes. There are also a series of rooms behind. The builders are Messrs. J. and C. Fowler, of Upper Norwood, and the architect is Mr. Hampden W. Pratt, F.R.I.B.A., of Pancroney-lane, W.C. The total cost has been £37,700.

The picture "City of Refuge," by Miss Margaret Lindsay Williams, which won the gold medal and travelling studentship last year at the Royal Academy Schools, has been purchased by Mrs. C. H. Bailey, of Newport, Mon., and presented by her to the town of Barry, the home of the painter. Miss Margaret Williams's work is not unknown to our readers, for we illustrated, in January 6, 1911, the gracefully-draped figure of "Silence," which gained an award at the Royal Academy in the previous year's competition.

A circular has been issued to members of the Institution of Municipal and County Engineers as the subject of the "Standardisation of Vitified Water Pipes." The standardisation committee appointed by the Institution, recognising that the present design of socket for such pipes leaves much to be desired, embodied an improved form in its draft specification. This specification is now being considered by the British Engineering Standards Committee, and, among other proposals, the subject of the improved socket is being discussed with objections, chiefly, the circular states, from the manufacturers represented on the committee. The circular contains diagrams of the old and new forms of sockets, and a list of advantages claimed for the latter. The new socket is practically self-centring; it requires less jointing material, and is stronger than the old form.

Building Intelligence.

NORWICH.—The Norwich High School for Boys, St. Giles-street, has been enlarged by taking up and reconstructing the adjoining premises. On the first floor of the new building is a lofty hall, approached by a corridor having three doors admitting to the three classrooms, into which the hall is divided when the folding partitions are drawn across. These classrooms can accommodate a hundred boys, and are fitted with a new type of desk, one to each boy, and adjoining the masters' rooms there are several more classrooms with sliding partitions, and a chemical and physical laboratory. Mr. E. J. Trench, of Station-chambers, Norwich, was the architect, and Mr. H. C. Greengrass, of the same city, the builder.

BLTYTH.—The foundation-stone of the secondary school was laid last week. The school is being built from the designs of Mr. Edward Cratney, of Wallsend, whose plans were placed first in an open competition for which fifty-five sets of drawings were sent in, Mr. J. A. Gotch, F.S.A., F.R.I.B.A., being the assessor. Accommodation is to be provided for 280 scholars, but the plans admit of future extensions to admit 50 more. There will be separate departments for boys and girls, although the central hall, laboratories, and art rooms will be available for both departments. The school buildings will be faced with local stock bricks burnt to a grey colour, with quoins in dark red sand stock bricks, and window arches in Lawrence's rubbers. Maple-wood flooring will be laid in all teaching rooms and main corridors. Messrs. Robson and Waddle, of Blyth, are the contractors, and Mr. R. Robinson, also of Blyth, is the clerk of works.

The Dewsbury Town Council have agreed to adopt the plan of Mr. Henry Dearden, the borough engineer, for the extension of the sewerage and sewage disposal scheme, after it has been slightly amended by Mr. Diggle, M.Inst.C.E. The full scheme would cost £100,000, but it is proposed for the present to spend but £57,000.

A marriage has been arranged and will take place in April, between Mr. Page L. Dickinson, President of the Architectural Association of Ireland, fifth son of the late Dean of the Royal Chapel, and Jean, daughter of the late Captain Fitzgerald Creagh, D.A.A.G., of Cabrinne, Clare, and of Mrs. Fitzgerald Creagh, Rosemont, Greystones, and niece of General Sir O'Moore Creagh, V.C., K.C.B., K.C.S.I.

The Royal Mausoleum at Fromore was opened to the public on Monday, on the eleventh anniversary of the death of Queen Victoria, when the new dome, stained-glass windows, and internal pendant and exterior bronze lamps were seen for the first time, as well as two oxymemorial tablets. All these additions were designed by Mr. A. G. Neott, M.V.O., resident architect, the windows and dome having been executed by Mr. John Pace.

Correspondence.

THE POLICY OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—In my letter which you kindly published on January 19, I suggested that your readers who are members of the R.I.B.A. should wait until they had the Journal before them, with the verbatim report of the business meeting on January 8, before accepting your views.

In your editorial reply, I am astonished at your suggestion that the meeting should never be fully reported, the official minutes being, in your opinion, sufficient. That may be so for your purposes and that of your friends, who were, according to their official minutes, in a minority; for the amendment to refer the whole scheme back to the Council "was carried by a large majority." Personally, at that meeting of over 300 members, one of the largest meetings ever held at the Institute, I think it would be an exaggeration to say that twenty men voted against the amendment, which was carried with cheers.

Now, Sir, I feel sure our Council is now composed of men who, whatever their private views may be, would never sanction such an unconstitutional proposal as the suppression of a full report of a meeting; and if any member did advocate such a course, I submit he would not be a fit man to be on the Council; and further, should his name be known, he would have little chance of reelection.

But I am glad to say I have full confidence in our Council, and am sure they will not sanction the slightest tampering with our official records. Your readers are no doubt aware that the representatives of the Press are not admitted to business meetings; consequently the R.I.B.A. Journal is not only the official record of the speeches delivered at their meetings, but it is the only record.

Whatever our views may be, do let us "play the game."—Yours, etc.

SYDNEY PERKS, F.R.I.B.A., F.S.A.

The Guildhall, E.C.

[It is for the Council of the R.I.B.A. to determine whether a full report of Business Meetings should be published. Such has not been the practice in the past. If a verbatim report is published, all interested will, at any rate, learn in more detail how Mr. Perks thinks we should "play the game."—Ed.]

HIGH RAILWAY RATES.

SIR,—With reference to Mr. A. W. Gattie's lecture to the Committee of Builders, as reported in your BUILDING NEWS of Jan. 5 and the *Star* of Jan. 15, I should like to point out one other factor which tends to make our goods rates so dear.

Take our goods cars as compared to the American freight cars: where we have to load three to four little waggons one of these cars would do. I have seen on the siding at Bethnal Green Junction a large tree loaded on four little trucks, each with a rigid wheel. The wear and tear of such loading going round a curve must be awful to the permanent way; but on the American principle this tree could be loaded on to one freight car, and same having the bogie-wheels, instead of grinding and tearing round a curve, it would glide round in the easiest manner.

Many years ago my father, who was connected with the Tubular Frame Car and Wagon Co., Ltd., had these splendid specimens of the American built freight cars exhibited on a siding at Paddington, and although the English railway engineers acknowledged the superiority of these cars over their own old-fashioned trucks, they would not move in the matter, saying that old revolutionise their rolling stock, and even when this company offered to take over their old cars and utilise them in building them up into the American type cars as exhibited, they would not concede, preferring to remain in the groove they were then in, and, I regret to say, still are. Had any railway at that time had the sense to grasp the idea and

put it into action. I am firmly convinced that we should have had a lower tariff years ago. The time and labour saved on building, the reduction of the wear and tear to the permanent way, which is one of the great items of a railway, would have allowed them to fully cover any reduction made on their tariff bills. To look at an American freight car and then at one of our four-wheeled, rigid-based trucks takes you back to Stephenson's time, and you wonder when are we going to advance. The old order, however, is not even now the plan for the future, whether we want to get out of the "groove" or not, and some day we shall not only see the American freight car installed, but our passenger trains built on the American principle as well, and until this is so, until we work our railways on a modern, and at the same time economic, basis, so shall we have to pay through the nose, not through want of experience on our railways' part, but because they will not give up the "old standard pattern," and advance with the times—I am, etc.

W. DAVISON.

69, Wimp's Avenue, Walthamstow.

SKELETON FRAME BUILDINGS.

Str.—We shall be glad if you will kindly allow us the use of your columns in order to make an announcement that will, we feel sure, be of considerable interest to architects and others concerned in steel-frame buildings.

It is enacted in Section 22 of the London Building Act (Amendment Act of 1909 (9 Edward VII. Cap. cxxx)), that, when it is proposed to erect a skeleton frame building, copies of all the plans, sections, and calculations in detail shall be deposited with the district surveyor. As it will be convenient for the architect, engineer, and district surveyor that these drawings and calculations shall be submitted upon a uniform basis, thus greatly reducing the labour of making and checking the calculations, the District Surveyors' Association incorporated have, with the co-operation of the Science Standing Committee of the Royal Institute of British Architects and others, drawn up a scheme to be adopted by persons depositing plans, sections, and calculations with the district surveyor.

This scheme is now completed, and copies may be obtained of the Association's publishers, Messrs. Merritt and Hatcher, Ltd., 2, Grocers' Hall-court, E.C., price 2s. 6d. net. The scheme provides for a uniform system of nomenclature, the adoption of uniform symbols and formulae, calculation-sheets for pillars, beams, and footings, &c. It also contains the formulae necessary for making the calculations, a schedule of weights of materials, and a number of tables of value. Samples of the various forms are attached.—We are, etc.

WILFRED J. HARCASTE, President.

BERNARD DICKSEE, Hon. Secretary.

District Surveyors' Association (Incorporated), 9, Conduit street, W., Jan. 19.

At a meeting of the Lockerbie District Committee of Dumfries County Council, on Friday, the committee unanimously resolved to increase the salary of the Municipal Engineer (Mr. R. W. Carson) from £200 to £225. It was pointed out that this sum was inclusive of the surveyor's travelling expenses.

At Leicester on Monday Mr. R. H. Bicknell M.Inst.C.E., held an inquiry on behalf of the Local Government Board in reference to a memorial of the residents asking for a provisional order to apply the powers of the Land Clauses Acts for the purchase of lands otherwise than by agreement for the completion of the widening of London road, between Victoria-road and Salisbury Avenue.

The premises lately occupied by Messrs. Hills and Underwood, Ltd., on Prince of Wales-road, near Theobalds, Station, Herts., and which have been acquired by local citizens, with the intention of converting them into assembly-rooms, with ballroom, supper-room, and winter gardens. The work of remodelling, rebuilding, and decoration is now nearing completion. The architect is Mr. J. Trench, F.R.I.B.A., and the constructional and decorative work is being carried out by Messrs. Wicks and Sons, of Norwich.

Intercommunication.

GUINEAS FOR BEST REPLY.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's name must not be given.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of only one must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no title or waxes and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. R. Makinson, Norwood House, Horwich, near Bolton.

QUESTIONS.

[35075].—THE NEW COPYRIGHT LAW.—In regard to the question of copyright I should be glad for information, if the Council of the Institute is in force. When it is, supposing A and B, amongst others, at the invitation of a committee submit to them designs for a church, and the committee select the design, but cause it to be later stone to embody points gleaned from B's and other designs. Is there any redress?—Z. H.

[35076].—NOTICE.—It is proposed to pull down a building, and the Council of the Institute is to be asked to build in its place a plain wall for a building. The two courses of footings to boundary wall project on to the adjoining owner's land. Can the object of the new course of footings and concrete foundations of the new wall projecting on to his land? Ought the building owner to give adjoining owner notice of his intentions? Is there any redress?—Z. H.

REPLIES.

[35074].—MOLDED STONEWORK.—Is it not the custom to measure stone by the cubic yard in any part of the country. Mr. Wright will probably find that by a clerical error the figures have got into the wrong column. The inclusion of "beds and joints" into the item of cube stonework is correct, however, and is recognised as good quantity current authority. The inclusion of "beds and joints" in item in superficial feet should be given for the moulded work, the complete "girth" being taken as the width of the moulding. Previously it was the custom to add to the superficial area of the item in superficial feet to get the cubic feet of work from the labours on it, including both preparatory and finished faces. The labour entailed in the method was considerable, and it was to be wasted, the builders bracketing several items together, and submitting one price for stone and all labours combined. To remedy this evil the new scheme is a very desirable one, and it is to be regretted, as before, as including "all plain beds, joints, and preliminary faces." Marginal sketches are provided, and only finished faces, mouldings, and sunk beds and joints are taken separately.—Edgar A. Rogers, P.A.S.I., 95, Henniker-gardens, East Ham, E.

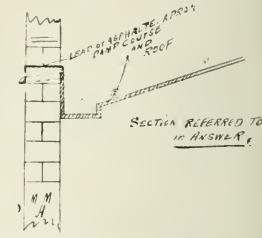
[35075].—COURT FOR LIGHT.—No building owner can legally use the space belonging to an adjoining owner, nor do the London Building Acts permit of such a course, as each building owner, when submitting plans of properties for approval, must calculate for an independent "regulation" air space to each property defined. The sections of the London Building Act, 1894, dealing with the question of Court for Light, are made by the building owner, and not those already made by adjoining owners. Without going further into this question, I should think that "Verdon" will readily perceive that taking advantage of a "neighbour's" air space, under the circumstances set forth, would be a moral wrong. Any amount of legal redress is less than a feather.—Burn, M.S.A., 147, Newcastle Avenue, Workop, Notts.

[35076].—COURT FOR LIGHT.—In building a court or domestic building to light habitable rooms, so as to comply with the London Building Act, 1894, the size of the court must contain, according to the height of the proposed existing adjoining building, the floor area as stated in the Act, the same to belong exclusively to the building for which it is primarily intended, so that the area of an adjoining court cannot be taken into consideration, so that its space may reduce that of the proposed. The reason is obvious, as there is no room for the court to form a court, and it is to maintain his court in the same position, rights of light excepted, which, however, do not exist until some twenty years have elapsed, and he may be obliged to form a court, and it is to be regretted in his old building, and the first-mentioned court would, consequently, be insufficient for its purpose. The method of forming a court, and the description a great advantage can be obtained for both buildings by forming the same in conjunction

with that adjoining.—Gordon L. Thorne, 10, Atherley-road, Southampton.

[35075].—COURT FOR LIGHT.—Section 42 of the London Building Act, 1894, gives the minimum length, width, and capacity of "court, light," and requires that the owner must provide adequate ventilation and communication with the outer air." Sections 40 and 41 require that spaces at the rear of domestic buildings for "light and air" shall belong exclusively "to the building," except when they abut on the River Thames or a public park. "Verdon" states that adjoining open space belongs to next-door owner; therefore he cannot use it for light and air. In "Jones v. Parry," 22 F.T. 69, the distinction between the two properties exceeded the mind of the court, but only 8 ft. of the space "belonged exclusively" to the respondent Parry, who contended that the measurement should be taken to the rear boundary of the property. The Council contended that the clause relating to open space was intended to prevent persons from building up to the rear boundary of their property, and that it had been contravened. Judgment was given for the appellant Jones, and an order was made for the demolition of the building erected by Parry.—Edgar A. Rogers, P.A.S.I., 95, Henniker-gardens, East Ham, E.

[35076].—WEATHERPROOFING OLD CHURCH TOWER.—My experience of old church towers (though "Rev." states in question that "Rev." has been in the tower in both cases) has been just the opposite, for I have found them either to be leaking through the leadwork over flat roof of the dome, or that the dome has only been inserted 1 1/2 in. in the wall joints, and generally through age, expansion, contraction, or otherwise, the said aprons have crept down to rest on the walls. The old builders neglected or thought it was not necessary to cover the whole area of wall on mason joints, and turn down at least 6 in. of the outer face of stonework (as sketch herewith). In my opinion, there are two methods of dealing efficiently with church towers: 1st, to cover the



roofs with at least 10 in. cast lead, turning up the same at least 6 in. above the rainwater outlets, and protecting the same with 8 lb. sheet-lead aprons, fixed as shown on sketch, and joint made good with mastic (some prefer this treatment, on account of lead, when discoloured, being a commercial commodity). For Portland cement and asphalt, as described, cover the boards of roof with Callender's bituminous sheeting in manner described for leadwork, and complete with asphalt finish. The special work the advertising pages of the BUILDING NEWS will guide him to a suitable firm. With reference to the perished surfaces of the stone and granite walls, should recommend "Rev." to remove all rotten, perished, or dilapidated stones, and replace them with well-known, sound, weather-proof stone to match, bedded as described for Portland cement, assuming that the latter is too tall an order, and £ s. d. is to be considered, then rake out all joints to a depth of at least 1 1/2 in., pick the loose, or roughen the face of stonework with sand and water, clean water, making good all defective portions, and face the exterior stonework with 1 1/2 in. of Portland cement and asphalt, as described, well washed sand, in the proportions of 1 and 1, lining or stroking out the same in imitation of stonework joints. I cannot recommend any waterproofing liquid for permanent use, in opinion, any of the above treatments would give every satisfaction.—M. Makinson, Norwood House, Horwich, near Bolton.

[35076].—WEATHERPROOFING OLD CHURCH TOWER.—Granite walls, if in an exposed position, should be impervious to moisture. In both cases, if the towers have been pointing, it is possible for the rainwater to penetrate through the joints. To overcome this trouble, it will be necessary to rake out the joints to a depth of at least 1 1/2 in., and then resurface the Portland cement and sand in equal parts. If it is found the above is not the cause, try one of the following methods, which should be carried out in the following order: 1st, method the stone must be first cleaned carefully from dust. When the stone is dry, saturate with a solution of potassium permanganate, and allow it to remain for 24 hours. In this operation, the stone must again be left to dry, and again saturate with the solution. When the solution has dried, it will form a hard, sound, and impervious crust, consisting of chloride of calcium or of barium; after this rain will do no more harm. Any holes may be stopped up with cement mortar, using water of temperature. Another method is to saturate the stone to a depth of about 1 in. with a solution of sulphate

of alumina in water, when dry, with a solution of potash. This method is applied until the pores of the stone are filled on surface. If any white marks appear, it can be removed with a stiff brush.—J. W. Cropper, 15, Dale-street, Runcorn.

[13076]—WEATHERPROOFING OLD CHURCH TOWER.—The application of waterproofing solutions for this purpose, I have found, are never very satisfactory. In the first place, the very exceptional weather conditions are necessary for the work. Much preparation would be required in this case in the way of scaffolds or cradles, and the cost would show for the money spent. Again, the treatment must be repeated at intervals to be of any real benefit. Some solutions for the preservation of stone, and their methods of application, are mentioned in these "Intercommunication" columns in the issue of September 15, 1911, but I should suggest that those were used only where it was impossible to do anything internally, as in monumental work in the solid. In this case, I presume that the first requirement is to keep the water from the inside of the tower, so that something like as follows should give satisfaction. This treatment is simply rendering in cement and sand the internal walls of the tower. We'll clean down the walls and free from dirt or earthy matter, also any loose, broken stone or mortar. If the stone is of more than half an inch, come harder than the other, and in any case the granite surface must be roughly chipped with a hammer and chisel, to form a key for the rendering. Next, wet the surface and render with Portland cement and sand in thick, and finish with a finely-trowelled surface, using a steel trowel. This in itself forms practically a waterproof surface, but this can be assured by mixing the cement rendering of two parts of sharp, clean sand and one of English Portland cement, mixed with 30 gal. of water to 1 cubic yard of stuff containing in solution 2 lb. weight of soft-soap and 1 lb. of alum. Or another method is to mix with the cement and sand 20 per cent. of lime putty, which must be well mixed up in the house. This will not keep the water out of the stone, but will do so from the interior of the tower, and by inserting a 5 lb. lead damp course right through the wall at the junction with the main building with similar flashing and apron, the whole of the internal walls will be kept dry, and the stone, being saturated, and not absorbing any more moisture, will not be liable to check the decay.—Gordon L. Thorne, 10, Atherton-road, Southampton.

[13077]—FLAT FACTORY ROOF.—The half-cirection given is a cheap and cheap construction, and has been adopted for use near London, where zinc "weathers" well. Before laying the zinc (if funds

the roof would be divided into bays of about 5 ft., reinforced concrete should be used, unless the cost is prohibitive. Firstly, on account of the long span, and, secondly, because of its droop under the weight of the best aggregate for that purpose being coke breeze, as determined by the tests carried out by the Portland Cement Association. The concrete should be laid with a fall of 1 in 40, and the water taken off as quickly as possible, according to the points available. As the flat is rather large, I would suggest that the asphalt be laid in 10 ft. squares to prevent any creeping caused by the alternate expansion and contraction. The asphalt should be laid up against the parapet wall to a height of at least 3 in., and turned into a joint in the courses of brickwork—in fact, I should take it through the wall so as to form a damp-proof course to the parapet wall. If timber is used for the flat, it will have to be fairly stout, in spite of having to carry hardly any weight, to carry any snow that may fall, the weight of which varies considerably—in fact, from 5 lb. per cubic foot for freshly fallen, to 50 lb. for that compacted by rain. Also, remember, it has no means of escape other than by melting like on a pitched roof, where it can slide off, backed with the weight of that near the ridge when the thaw sets in. Vulcanite is the next best, and is not too costly. The covering of zinc, etc., is rather liable to permit of vegetation, which is unsightly, whilst flashings are required against all openings and gutters, and need careful looking after. Zinc, etc., has too many joints (necessary for their expansion and contraction), whilst the 10 per cent. increase in the already high prices will materially add to the outlay. Might I suggest that a "Young Architect" was well reinforced concrete floors and columns, the former of the hollow tile or brick pattern, giving the cheap iron columns must be well protected, in case of fire; otherwise down goes the floor.—K. H. Road, Lecturer on Building Construction, Gloucester Technical Schools.

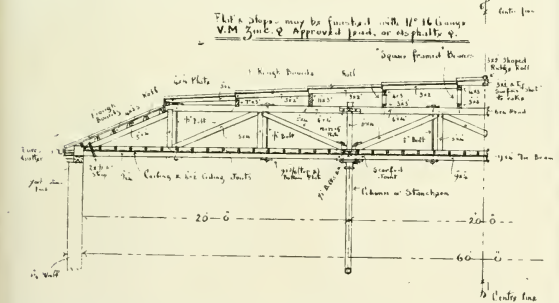
LEGAL INTELLIGENCE.

CLAIM FOR GOODS SUPPLIED TO BUILDERS.—In the King's Bench Division on Thursday last, Mr. Justice Hamilton had before him a non-jur. action brought by Messrs. Ramsden and Carr, of St. Dunstan's Street, Seymour-place, South Kensington, against Messrs. J. Chessum and Sons, builders, of South-place, Finsbury, during 1910 a cinematograph company engaged Messrs. Chessum and Sons to erect Cinema House, at 225, Oxford street, and the plaintiffs now claimed payment in

Hallett, and Co., builders and decorators, of 11, West Halkin-street, Mayfair, sued Mr. Henry Seward Cowdell, of Beckenham, to recover a sum of £75 19s., balance of an account for work done at North Lodge, on the Lewes-road, Battle. The plaintiff's claim was made in October 1910. Mr. Cowdell purchased the house in question, for which he required the alterations and additions. He approached the plaintiffs, whom he requested to prepare plans and estimates. The plaintiffs said that Mr. Cowdell had enquired upon them the necessity for haste, desiring to have the place ready for occupation by March 25, 1911, and repeatedly he had urged that there should be no delay. Mr. Langdale had an interview with the defendant on October 25, 1910, on sea, taking with him the plans. This interview was regarded as important by both the parties, inasmuch as there was a direct conflict of evidence as to what took place at it. The plans were discussed, and the whole matter investigated.

Mr. Langdale claimed that at that interview he was instructed to proceed with the whole of the work—the interior as well as the roof and gutters, and that it had been arranged that he was to take the defendant on October 25, 1910, the usual 5 per cent. establishment charges and 10 per cent. profit. The defendant, on the other hand, pleaded that plaintiffs, at the interview on October 25, were instructed only to do work on the roof and gutters, and that the defendant, on that question, a verbal agreement was entered into to do the work for £40. That the plaintiffs denied. In the course of the hearing, Mr. Drucquer (the defendant's counsel) said that it was a question whether the order was given by Mr. Cowdell gave the order for the whole of the work, and added that his clients absolutely denied orders for the interior work. His client, too, disputed the prices for the work in respect to the roof and gutters. In giving judgment, after he had heard the evidence, Mr. Justice Hamilton (the Official Referee said he came to the conclusion that the whole conversation between Mr. Langdale and Mr. Cowdell, on October 25, 1910, resulted in Mr. Langdale receiving instructions for the work on the roof, 50 per cent. of the cost, and consequently the plaintiffs were justified in incurring the expenditure. Mr. Langdale had stated in the witness-box that they would not have engaged a foreman at 43 a week for a 4-week job. This was not a case where one or either of the parties questioned each other's veracity: there were no mutual accusations of trying to deceive. It was a matter of memory, and he (the Referee), decided that the memory of the plaintiffs was correct. Mr. Langdale, having made notes of what transpired, in his Honour added he could not find anything to discredit the plaintiffs concerning their time-sheets. The weather was very bad all the time the work was carried out; they had been told that the weather was rain, wind, snow, thunder, and lightning; that the place was exposed, and hence it was not plane-sailing work. Nor could he find that there had been any overcharges by the plaintiffs. There were, therefore, no grounds for the plaintiffs for the balance claimed—£75 19s., of which £25 paid into court by defendant formed a part. Plaintiffs would have High Court costs.

A QUANTITY SURVEYOR AND COSTLY LITIGATION.—Mr. James Charles Cramer, who has carried on business as a quantity surveyor at 11, Brunton-street, N.W., who issued a notice before Mr. Acting Registrar Seville at the Manchester Bankruptcy Court on Friday last, for his public examination. Dr. Atkinson appeared for the debtor. The statement of affairs showed liabilities of £3,000, of which £1,000 was estimated to rank for dividend, and no assets. The debtor gave as the cause of his failure the law costs in connection with the litigation instituted by him in the matter of W. Brown and Sons, builders, of 225, Oxford-street, of Salford, and Messrs. J. Reever and Co., who had been appointed liquidators. Reever stated that the insolvency was due to the prominent part the debtor took in the recent litigation in the Salford County-court, and elsewhere arising out of the affairs of Messrs. Brown and Sons. The cause of the debtor was the plaintiff or complainant in this litigation. It was generally understood that the debtor was the mouthpiece for a considerable number of the creditors in that failure was discredited with certain features in the administration, and in particular with a proposed arrangement between the trustees and the special managers. As the litigation eventually went against the debtor, and as he had incurred no costs, the liquidators were obliged to pay himself a man of moderate means, insolvency was the inevitable result. The chief unsecured liabilities were as follows:—To the special manager of Messrs. Brown and Sons, £285; the joint trustees of Messrs. Brown's estate, £738; the debtor's own solicitor, £150; and the Union Bank of Manchester (the petitioning creditors), £280. In answer to the Official Receiver (Mr. J.



permet), cover the boarding with felt. "Young Architect" should apply to Messrs. Brady and Co., Euston-road, London, N.W., who issue a useful catalogue on the laying of zinc, etc. If the position is one where the atmosphere is permeated with moisture, or other injurious vapours, use asphalt from an approved firm. The principals, as shown, may be from 11 ft. 6 in. to 12 ft. 6 in. apart—W. H. Ingham, M.S.A., 147, Newcastle-avenue, Workson, Notts.

[13077]—FLAT FACTORY ROOF.—The best materials and construction would be reinforced concrete covered with asphalt put on hot in one continuous coat all pointing to the peripheral walls and all properly graded to falls, and turned up the walls with rounded cove. He had better write any of the following firms, whose addresses are in your "Directory," who would be pleased to submit details and prices, and these would be more satisfactory than any information to be obtained from this column, consisting of inquiries supplied by querist: Inducted Bar and Concrete Engineering Co., Ltd., Queen Anne's Chambers, Westminster, S.W.; Klein Co., Ltd., 133-136, High Holborn, W.C.; Stuart's Granolithic Co., 4, Fenchurch-street, E.C.; Trussed Concrete Steel Co., Ltd., 83, Abchurch-lane, E.C.; Westminister, S.W.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13077]—FLAT FACTORY ROOF.—"Young Architect" has the choice of several good roof-coverings: lead, zinc, copper, vulcanite, and asphalt. I would recommend asphalt as being the most suitable for the following reasons: (1) Absence of joints, (2) laid in situ, (3) even fall, no dips being required. As

respect of certain goods supplied, including a quantity of artistic door-handles and hammered silver and brass doorplates. They alleged that the amount due to them was £142 12s. which they alternatively claimed as money had and received by the defendants for the use of the plaintiffs, or as money held in trust for them. Some time after the place had been opened the cinematograph company went into liquidation, and plaintiffs alleged that Messrs. Chessum and Sons had received certain payments which should be allocated to the goods supplied by the plaintiffs. This was disputed by Messrs. Chessum and Sons, who entered a general denial of liability, and contended that the orders for the goods were given by the architect, but not confirmed by them. His lordship, in the course of a lengthy judgment, expressed the view that Messrs. Ramsden and Carr had failed to show that any money had been received to their use by the defendants. The plaintiffs succeeded on the issue as to goods sold and delivered, and obtained judgment with costs on that issue. Defendants were ordered to pay the costs on the issues on which the plaintiffs failed.

ACTION BY BUILDERS: BALANCE OF ACCOUNT.—Mr. H. W. Verey, one of the High Court Official Referees, gave judgment last week in an action in which Mr. Arthur Cartlew Langdale and Mr. John Hallett, trading as Langdale,

Grant Gibson, the debtor said that he started business on his own account in January, 1901, with a capital of £500 which he had saved from his earnings. He had acted as quantity surveyor for Messrs. Brown and Sons, and when the firm failed the main source of his income disappeared. The reason he took up the somewhat leading position he did in regard to the litigation was that he considered that he and the general body of creditors had been unjustly treated. He was justified in his action because he was advised that he had a good case. As a matter of fact, he won it before the Judge of the county-court. The county-court Judge decided in his favour on every point. Afterwards costs he had never dreamed of were run up. It was possible that he would never have undertaken the litigation if he had known it would take seven or eight days.—The Official Receiver: The litigation you initiated undoubtedly involved serious imputations against a number of people?—The Debtor: Yes. The Official Receiver: And if those imputations were not well founded it was as certain almost as anything could be that those persons would not be content with a position which left them, as it were, convicted of serious irregularities? Yes.—Was it not therefore clear from the first that this litigation might involve you in very heavy liabilities for costs? The result has proved it has done.—In reply to Dr. Atkinson, the debtor said that when he took counsel's opinion upon the litigation he was advised that he had a good case, and if he had established his case he did not think otherwise than that the Judge would order the costs to be paid out of the estate. The examination was closed.

EDWARDES SQUARE LITIGATION. Allen and Others v. Bird and Others.—An appeal by the defendants in the action, J. E. and C. J. Allen and the Amalgamated Estates (Limited) was heard against an order of the Court of Appeal affirming a judgment of Mr. Justice Warrington. The plaintiff, Mr. Ernest Bird, as the treasurer and secretary of the Garden Committee of Edwardes-square, Kensington, brought the action for a declaration that that committee was entitled to the exclusive care, management, and regulation of Edwardes-square, so as to preserve and maintain the same for the use of the members of the committee, resident householders, and their families. He also asked for an injunction to restrain the defendants from locking the gates of the square, and from interfering with the committee in the exercise of their powers. The defence made to the plaintiff's claim was that the powers and rights that the garden committee had possessed came to an end on March 25 last, when a certain lease for ninety-one years of the square garden, granted in 1820 by the then Lord Kensington, expired. Mr. Justice Warrington held that the plaintiff, as representing the garden committee, was entitled to the declaration which he claimed, and also, if he required it, to the injunction. He also directed that there should be an inquiry as to damages which had been sustained by reason of the interference with the garden committee. The defendants were also ordered to pay the costs. On appeal the Court of Appeal upheld that decision. The building owners now appealed to this House. The appeal was dismissed, their lordships holding that the garden committee of the square retained their rights under the private Acts of 1819 and 1851. Appeal dismissed accordingly, with costs.

THEATRICAL ARCHITECTURAL DISPUTE.

—Question of Fees.—Mr. Edward Pollock, one of the High Court Official Referees, gave judgment on January 23, in an action in which Mr. Isaac Nathaniel Lyons was the plaintiff, and Mr. Ernest Runtz, architect, practising at 64, Victoria-street, Westminster, was the defendant, against whom Mr. Lyons presented a claim in respect to a series of business transactions of a complicated nature. A counterclaim was advanced by Mr. Runtz in regard to architectural services, including the preparation of plans for the Elysée Theatre that was to have been built by Mr. Lyons on a site in the Haymarket. Besides evidence of account, professional testimony was also forthcoming. Mr. Lyons calling Mr. Robert Briggs, of Messrs. Frank Matcham and Co., and Mr. Bertie Crewe, and Mr. Runtz calling Mr. Herbert Phillips Fletcher, F.R.I.B.A., of Messrs. Banister Fletcher and Sons, Mr. J. Priestley Briggs and Mr. Farrow, the vice-president of the Surveyors' Institute. Mr. Pollock, in the course of his judgment, said that this was an unfortunate piece of litigation concerning several intricate matters. The question of the Haymarket site was a conflicting one, and it was the most substantial item of the whole affair. The plaintiff's professional witnesses seemed to him to be also gentlemen of very large experience. Looking at the evidence, he came to the conclusion that £500 would be a fair sum to allow Mr. Runtz in respect of the Haymarket site. The Official Referee then

dealt with the parties' figures, and setting each against the other, and making a calculation, said that Mr. Lyons was entitled to a sum of £599 15s. 10d. in all, and there would be judgment in his favour for that amount, with costs, and also in his favour on the counterclaim, with costs. Mr. Jones protested in effect that the Official Referee had determined the figure on a wrong basis; but his Honour adhered to his decision, remarking that if Mr. Jones had anything further to say he must go elsewhere. Mr. Jones said it was very hard on Mr. Runtz.—Mr. Pollock said it was also hard on him to allow him to deal with the case, as he had done, and then to make this suggestion.

TOWN-PLANNING ACT CASE.—In the County-court of Marylebone on Wednesday, Judge Sir William Seale and a jury heard an action under the Housing and Town-Planning Act of 1909, which contains a clause requiring all houses under £40 a year in the Metropolitan area to be reasonably fit for habitation.—Thomas Tibury, Mercery-street, a general dealer, sued Mr. J. H. Fielding, Sutherland-avenue, for damages for personal injuries received through a falling ceiling. The plaintiff said he rented a room from the defendant in Trevorton-street, Notting Hill, and on November 22, as he was sitting down to breakfast, the ceiling suddenly fell, portions striking witness on the head, which was cut severely in several places. He had to pay several visits to the hospital.—Mr. Barnett (representing the defendant): You went into the rooms on October 2, and paid rent till October 23. Were you then unable to pay any more?

I was able to pay, but the place was in an awful condition. Mr. Barnett submitted that plaintiff was a trespasser on the premises, notice to quit having been given, and that there was no duty on the part of a landlord towards a trespasser. For the defendant it was stated that on November 13 the plaintiff was given notice to leave on November 21, but that when a man was sent to do the repairs on that day, Tibury and his family were still in the place. The repairs were done to the ceiling, and the next day, when the plaintiff had no right in the place, the fall occurred. Mrs. Tibury, however, said the notice to quit was pushed under the door after the accident occurred. The jury awarded the plaintiff £4 with costs on Scale A.

STAINED GLASS.

WESTMINSTER ABBEY.—The Bunyan Memorial Window in Westminster Abbey was dedicated yesterday (Thursday) afternoon. At the close of the service there was a procession from the Sacrament below the altar to the window in the west aisle of the north transept. The deed of gift of the window was presented to the Dean and Chapter by Dr. Clifford. The window consists of two lights, each 26ft. high, and a headlight, the subject being scenes and incidents narrated in the Pilgrimage.

WATER SUPPLY AND SANITARY MATTERS.

BARNARD CASTLE SEWERAGE.—The Barnard Castle Urban District Council have approved plans prepared by Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor and Wallin), of Newcastle-upon-Tyne and Birmingham, for intercepting-sewers along the side of the River Tees and a long retaining-wall in Galgate. The scheme was approved at the last meeting, and instructions given for an application to be made to the Local Government Board to borrow the necessary amount for executing the works.

MANCHESTER MAIN DRAINAGE SCHEME.—Mr. T. de Courcy Meade, city surveyor of Manchester, gave a lecture on Tuesday night at the Municipal School of Technology, in that city, on "The Main Drainage of Manchester." Mr. Meade described the new works for which Parliamentary sanction has been obtained, and which will cost about £1,000,000 sterling. The drains when the enlargement plan was completed would be of sufficient capacity to take the sewage from an area of sixty square miles with a population varying from 1,400,000 to 1,600,000. Much would depend upon whether districts treated a portion of their storm-water at their local works, instead of discharging the whole of it into the Manchester system. "Speaking generally," Mr. Meade said, quoting the words of Sir Alexander Binnie, "the new scheme of main drainage will make Manchester one of the best drained and in every respect the most sanitary city in the kingdom."

The late Mr. Kenneth Spicer, aged 81, of 48, Grove-villas, Maidstone-road, Rochester, retired builder, left personality amounting to £14,986.

Our Office Table.

On Wednesday evening the President and Council of the Royal Institute of British Architects revived the pleasant and informal "at-homes" inaugurated a few years since by Sir Aston Webb. A large number of members—between three and four hundred—braved the incessant rain and met in the galleries at 9, Conduit-street, for a smoke and chat. Unfortunately, owing to ill health, the host, Mr. Leonard Stokes, was unable to be present; but Professor Reginald Blomfield, A.R.A., as senior Vice-President, took his place and genially received the guests. Designs and measured drawings submitted for the Royal Institute prizes and student-ships were exhibited on the walls and screens in the galleries, and their examination evoked much criticism and comment. As usual at Conduit-street, the cloak- and refreshment-room arrangements were admirably stage-managed, and a very pleasant evening was spent.

A scheme is now being carried out by which H.M. Office of Works is expected to bring the protection of Hampton Court Palace from fire up to date. The work of laying new water mains which are to furnish a high-pressure supply was begun on Friday by the Metropolitan Water Board, who are carrying a 15in. main from the Flower Pot Gate in the Hampton Court road along the main walk in front of the Palace. From this main there will radiate several 9in. mains, while 4in. distributing pipes will convey the water to all parts of the buildings. The pressure maintained in the pipes will carry the water to the highest part of the Palace, and plugs and hydrants will be fixed here and there for immediate use. A system of electric fire alarms will enable communication to be made with the Palace Fire Brigade. The Palace has also been placed in direct telephonic communication with the Kingston Fire Station. Three new cottages for the accommodation of firemen and their families are to be built in the grounds adjoining the Palace.

The Local Government Board have issued Part II. of their annual report for 1910-11, which deals with public health and local administration, county council administration, and local taxation and valuation. As regards authorities outside London, 467—or about 25 per cent of these authorities—proceeded under Part II. of the Housing of the Working Classes Act, either in its original form or as modified by the Act of 1909, in regard to houses unfit for human habitation or obstructive buildings. The proceedings taken were, in nearly all cases, in connection with buildings unfit for human habitation, only eight authorities reporting proceedings relative to obstructive buildings.

A striking peculiarity of certain Flintshire and Vale of Clwyd churches was mentioned by Mr. Edward Owen, secretary of the Royal Commission on Ancient Monuments in Wales and Monmouthshire, in a paper he read at Carmarthen on Thursday night in last week. Mr. Owen said he was much exercised over the fact that many of them are formed of two chambers of precisely equal size placed side by side, and generally containing similar constructional features. Their singularity has struck one of our ablest historians, Professor Tout, of Manchester, who has suggested that as the same peculiarity is observable in many of the churches of the South of France, its presence in Flintshire may be due to some at present unknown Aquitanian influence.

During the work of reconstruction of Goodrich House, Hatfield, which is now being carried out for Mr. F. W. Speaight, there has just been discovered the remains of a 16th-century timber building, which has been hidden by brickwork for over two hundred years. A large number of silver and copper coins, dating from the time of Charles II. to George II., have also been found. The property was originally a portion of the Manor of Hatfield, and was sold

in 1792 by the first Marquis of Salisbury to the Hart family, from the executors of which family it was purchased last year by Mr. Speaight, whose residence practically adjoins it on the south, Hatfield Park forming its northern boundary.

Many representatives of Yorkshire local authorities met in conference on Friday at the town-hall, Leeds, to discuss town planning. Mr. Alderman F. M. Lupton, of Leeds, who presided, observed that a great deal of planning had been carried out in Leeds, though the city had not yet applied to the Government for a town-planning scheme. During the last forty years, twenty-five miles of streets where there were few buildings had been widened, whilst six and a half miles of building-bordered streets had been widened, and five miles of new streets had been constructed. The chairman emphasised the value of making roads and streets the right width before they were lined with buildings. The cost of widening one of the streets in Leeds had worked out at £1,700,000 per mile. Happily only ninety yards were carried out at that rate. In Canada the authorities were aiming at making the main roads 100ft. wide. They were not going to that extent at present, but were reserving a portion of the land needed for the temporary purposes of cultivation. One Leeds street had been bought over four times. Mr. H. R. Aldridge delivered a lecture on town-planning, showing what had been done and what it was sought to do.

It has been decided, on the invitation of his Majesty's Government, to hold the third International Road Congress in London, in June, 1913, to continue the studies already undertaken regarding the construction and maintenance of roads and bridges in view of modern methods of locomotion. The leading foreign Governments have intimated their intention of sending delegates. A provisional programme has been drawn up, which it is estimated will require a sum of £5,000 to carry out. The Government are contributing £500 towards this amount, and other donations of a like amount have been voted by the Royal Automobile Club and the Society of Motor Manufacturers. Subscriptions have been promised or received from the Scottish Automobile Club, the Institution of Automobile Engineers, the Road Surveyors' Association of Scotland, the Auto-Cycle Union, the Commercial Motor Users' Association, the Car and General Insurance Corporation, the Clee Hill and Cleobury Mortimer Stone Companies Association, and some seven corporations. An organising council has been formed by representatives of local authorities and of engineering, scientific, automobile, and other kindred societies. General and executive committees have been elected to carry out the work of organising the Congress, with Sir George S. Gibb, chairman of the Road Board, as chairman; Lord Montagu of Beaulieu, Mr. Joynson Hicks, M.P., and Mr. F. Berryman as vice-chairmen; Sir Charles Rose, M.P., as hon. treasurer; Mr. Rees Jeffreys, secretary of the Road Board, as hon. secretary; and Mr. Montagu Harris, secretary of the County Councils Association, as deputy honorary secretary.

Mr. Alfred P. Maudslay, in his presidential address to the members of the Royal Anthropological Institute given on Tuesday night, took as his topic "Problems in the Archaeology of America." The immediate and energetic prosecution of archaeological studies was, he pointed out, of vital necessity, since the material with which the science dealt was becoming rarer every year as primitive customs yielded to civilisation. In America there were many traces of extinct civilisations. Such a people as the Aztecs, though civilised in some respects, were barbarians, or even savages, in others. No better test of the antiquity of American culture existed than the fact that maize and other vegetable foods had been gradually evolved by patient cultivation from obscure wild plants. In America, where race overran race and culture succeeded culture, archaeology might not be sufficient to solve all problems, but it might point the way to

further research. At Ixkum, in Northern Guatemala, a stone relief showed two typical Maya standing on two different individuals of a totally different type; the latter probably represented a conquered race. Near the city of Guatemala, stone figures had been discovered closely resembling this non-Maya people. Ruins in the neighbourhood bore a resemblance in plan to those at the famous site of Teotihuacan in Mexico. A vast field for investigation was offered by America, the study of which had been rather neglected in this country.

In October, 1910, the east corridor, leading from the Central Hall in the Houses of Parliament to the lower waiting hall, was decorated by six historical panels. The studies were selected from the reigns of Henry VI., Henry VII., Henry VIII., Edward VI., and Mary by the several architects who worked in association with each other. The donor of one of the frescos was the ninth Earl of Carlisle, and the painter, Mr. F. Cadogan Cowper, A.R.A., the subject being Erasmus and Thomas More visiting the children of Henry VII. at Greenwich. Mr. Cadogan Cowper was afterwards commissioned by Lord Carlisle to decorate the tympanum of the arch above this picture, and Mr. Cowper's paintings are now being placed in position, and will be open for inspection on Saturday. The subjects are King Edward IV. and King Richard III., with the arms, badges, and devices of the House of York.

In connection with the engineering department of the Manchester University, four special short courses of lectures have been arranged for this month and February. The series was opened on Thursday afternoon in last week, when Sir William H. White gave the first of two lectures on "Experimental Research and Engineering Practice." The later courses will be given by Mr. T. de Courcy Meade, who will deal with "Modern Systems of Town Drainage," Mr. Dugald Clerk, and Mr. E. Hopkinson. Sir William White described the limitations necessarily imposed on the employment of purely scientific methods in the practice of engineering and the necessity for experimental research as an aid to scientific methods in engineering practice. Sir William gave a second lecture yesterday (Thursday), when he described in detail the best methods of conducting experimental research and analysing results.

Alfred Stevens's Wellington memorial in St. Paul's has at last been completed by the erection of the bronze equestrian statue of the Duke, which Stevens intended as the crowning feature of his great work. Mr. John Tweed was the sculptor chosen to finish the work by the committee of private donors. The statue stands on a base of marble, and is life-size. The Duke is shown wearing the military uniform of the Peninsular wars, his sword by his side. He is bareheaded. He holds the reins in his left hand, and in his right hand is the field-marshal's baton.

The Chester City Council decided on Wednesday to apply to the Local Government Board for sanction to borrow £13,000 for the construction of hydro-electricity works at the old Dee Mills in the city. The object of the corporation is to utilise the tide-water power of the Dee for the production of electricity, and thereby to augment the supply from the existing works. Before deciding upon the expenditure the town council took the opinion of Mr. Hutzig, consulting engineer, who endorsed the scheme of Mr. Britain, the city electrical engineer. The estimated net profit to result from the sale of electric power is set down at £3,000 a year.

At Tuesday's meeting of the town council of Stafford, the housing committee again brought up their former recommendation that the borough surveyor should get out particulars as to the erection of fifty houses. This was met by an amendment that the committee should be instructed to prepare plans and estimates for the erection of twenty cottages in two sizes, to be let, firstly, to persons removed from houses under a closing order of the council, and to no person who was in receipt of more than £1 a week, and to report as to what rent should be charged to meet the charges. The amendment was carried, after a long discussion, by 14 votes to 8.

MEETINGS FOR THE ENSUING WEEK.

- FRIDAY (To-day).—Royal Sanitary Institute. "Open Air Schools," by Professor Ralph P. Williams. 7.30 p.m.
Leicester and Leicestershire Society of Architects. "The Architecture of Stamford," by H. P. Trahan. A.R.I.B.A. 8 p.m.
- SATURDAY (To-morrow).—Architectural Association. Visit to the New Polytechnic, Regent-street, W. 2 p.m.
- MONDAY.—Architectural Association. "That Modern House Planning tends to be Over-Elaborate," by A. G. R. Mackenzie, A.R.I.B.A. 7.30 p.m.
Royal Society of Arts. "Ocean Waves, Sea Beaches, and Sandbanks," Cantor Lecture No. 2, by Dr. Vaughan Cornish. 8 p.m.
- TUESDAY.—Royal Society of Arts. "Irrigation in South Africa," by W. A. Legg, M.Inst.C.E. 8.30 p.m.
- WEDNESDAY.—King's College, London. "The Art of the Catacombs," by Dr. J. Paul Richter. 5 p.m.
Royal Society of Arts. "Recent Progress in Radio-Telegraphy," by Professor G. W. Osborn Howe, M.Sc. 8 p.m.
- FRIDAY (Feb. 2).—Glasgow Architectural Craftsmen's Society. "A Cistercian Monastery," by James A. Lauchlan. 8 p.m.

Mr. Robert Forster has been appointed surveyor to the Alston Division of the Cumberland County Council, in succession to Mr. A. Rogerson.

Mr. C. C. Hancock, assistant surveyor to the Radstock Urban District Council, has been appointed surveyor to the Warrminster Rural District Council.

The partnership hitherto subsisting between H. Barnes, jun., and H. Barnes, sen., and C. F. Burton, architects, West Hartlepool and Newcastle-upon-Tyne, under the style of Barnes and Burton, has been dissolved.

Mr. C. W. Bevis, F.R.I.B.A., Elmgrave Chambers, Southsea, has been appointed architect for the building of the girls' hostel at Milton-next-Portsmouth, in connection with the Portsmouth Day Training College. The building will cost about £20,000.

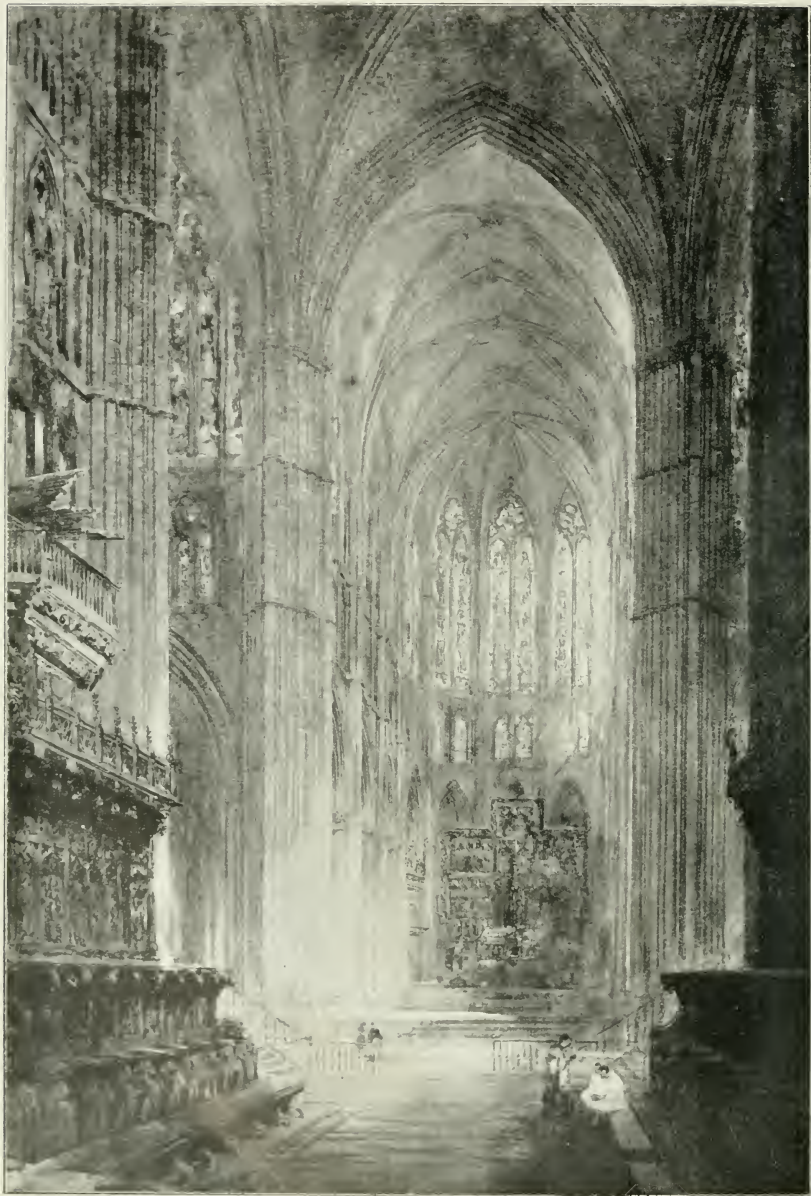
Mr. Benjamin Holt, who for sixty-one years has been engaged at Windsor Castle, was on his retirement presented with an address, together with a marble clock, on Friday, by the staff of the Office of Works at Windsor Castle. Mr. Holt, who is eighty-four years of age, has served under four clerks of the works, and also under Mr. A. Y. Nutt, M.V.O., the present resident architect of the Castle.

"Laxton's Builders' Price Book for 1912" (Kelly's Directories, Ltd., ls.) is issued. It contains much information useful to architects, surveyors, and builders, engineers, and contractors, the prices of materials, work, etc., being given in 72,000 cases. Such prices, where labour enters into the question, are only based on the London rate of wages, still the book will be found useful in other parts of the country.

The Housing and Town Planning Committee, at a meeting of the Huddersfield Town Council on Friday, reported that tenders had been received for the erection of thirty-eight workmen's dwellings, but the consideration of the tenders had been postponed. The council subsequently sanctioned an application to the Local Government Board for power to borrow £8,771 for the erection of working-class dwellings on land in Wakefield-road, Moldgreen.

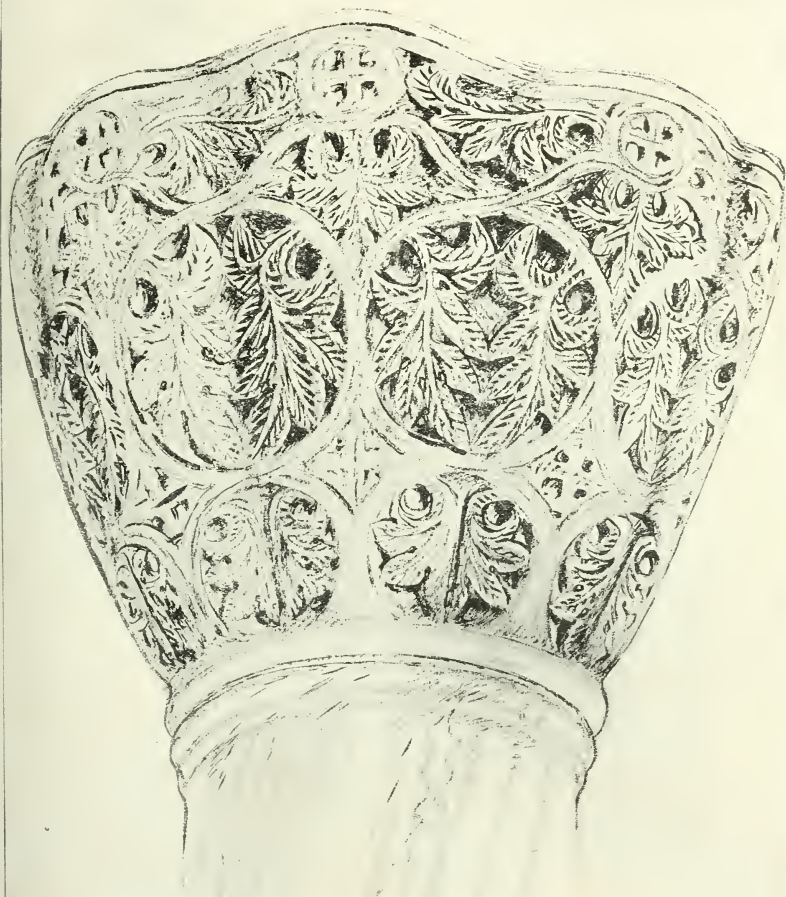
At a meeting of the Senate of London University held on Wednesday, the Vice-Chancellor (Sir William Collins) presiding, the offer, previously announced, made by an anonymous gentleman through the Chancellor to provide at University College, at a cost of £30,000, accommodation for the teaching of architecture, sculpture, and eugenics, was gratefully accepted, and Professor F. M. Simpson, F.R.I.B.A., was appointed architect for the new buildings.

The formal opening of a hostel for women students attending the Dudley Training College took place on Monday. The hostel will accommodate fifty students, and is built in a single block in the style of architecture harmonising with the training college, which is only a short distance away. A stone porch marks the entrance to the main corridor, and the exterior is of red stone bricks with stone quoins. Each student will have a separate bedroom, and special quarters are provided for the vice-principal, matron, and staff. There are large dining and recreation-rooms. The architects of the hostel and of the adjoining training college, which cost £23,000, are Messrs. Crouch, Butler, and Savage, of Birmingham.



CHOIR, VIEWED FROM THE TRASCORO, LEON CATHEDRAL, SPAIN.

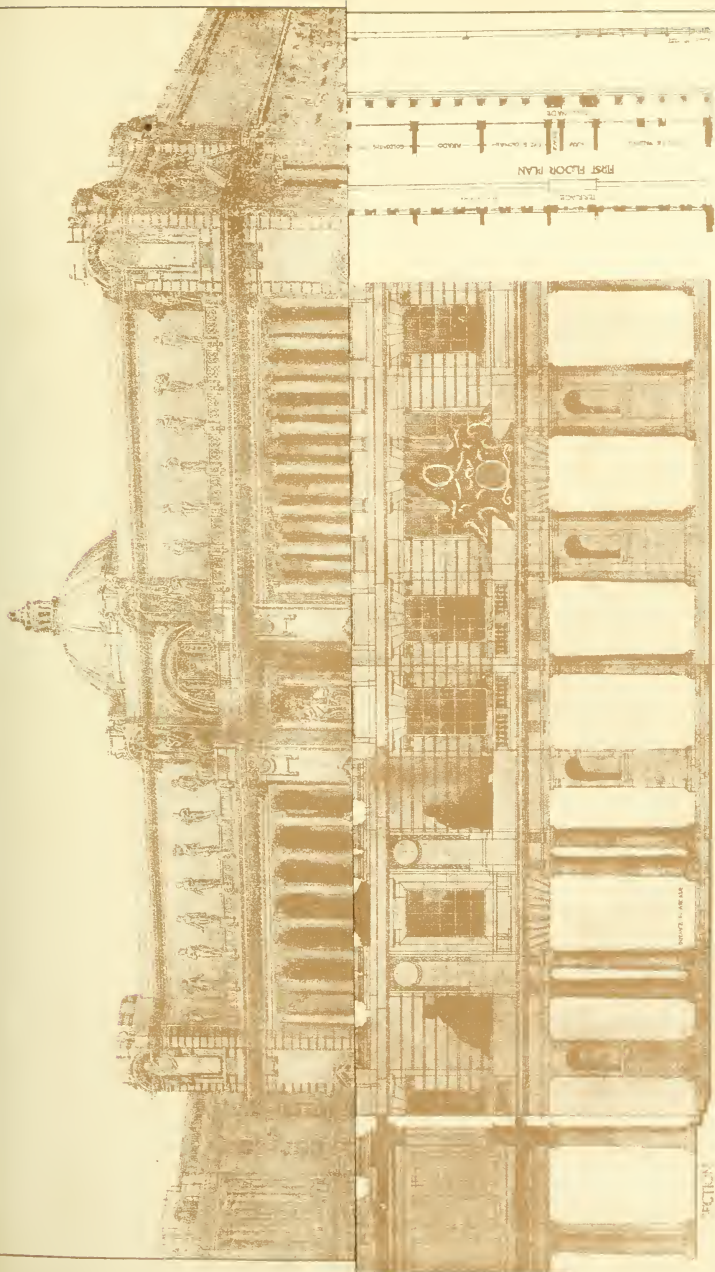
From a Watercolour Drawing by MR. HENRY C. BREWER.



BYZANTINE CAPITAL OF THE VIth CENTURY. RESTORED FROM THE PHOTOGRAPH OF A BROKEN ORIGINAL IN THE MUSEUM AT GIZEH.

Above what is here shown there probably would have been a thick Bearing-block.

Restored and Drawn by Professor LETHBRIDGE, F.R.I.B.A.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strend, W.C.

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OUR ILLUSTRATIONS.

Courtyard of a Royal Exchange. R.I.B.A. Title Prize Design, 1912. By Mr. Louis de Soissons.
 R.I.B.A. Pagein Travelling Studentship Drawings, 1912. By Mr. James Macgregor.
 R.I.B.A. Grissell Gold Medal Design for an Isolated Exhibition Building. By Mr. Thomas Braddock.
 Statue of St. Aidan's, West Hartlepool. Mr. F. W. Doyle Jones, Sculptor.
 The Cement Gun.

BEGINNINGS AND ENDINGS.

Is there any fund of spare energy in the universe, or is all that can be gained in one place lost somewhere else? It seems to be so in our world, and; if there, why not in any other? If so, is not prayer a practical request that somebody else may be robbed that we may profit by his loss? This is how the average workman thinks of his own employer—as somebody whose losses are sure to make things better for the man he employs. If this is not true, either in one sense or in the other, then "things on earth and things in heaven" are not as nearly alike as Milton seems to have supposed.

The Power we pray to seems always to have some mercy left for us. When other pleasures fade, there is still a pleasure in work, and when all other romantic things depart, we may, perhaps, still look forward to the romance of death; for beyond the tomb we may yet hope to find our earliest love—the fairest of the fair, and the sweetest of the sweet. If we have wasted a lifetime for this, what else can equal it? Darkness, rather than light, seems to be the normal state of things in the universe, and Nature wars against it, as we have to do, by setting up lamps every here-and-there about her premises. Some of her lamps seem near extinction; but we suppose, by the time those fade, fresh lights will begin to burn;—we cannot say where or how, for Nature manages her own affairs, and does not ask us to manage them for her.

We are, most of us, living in the hope that more work and better work will soon appear; but which of us can prophesy where it will come from? And which of us can be sure that Nature's favourite children will be able to get it executed? Much abler races than our own may arise, though perhaps not from earthly parents. None of us can tell where we first came from, and whom we may leave as successors. And many of us are hoping for (perhaps, only wishing for) a better class of work than we have learned to do as yet. We go on and on, and improve slowly, if at all, at first. Will new faculties or new capacities come with us out of the void? Or when the old ones quite die out, must new ones be born? Perhaps the Oriental races are wiser, who say "Sufficient for the day is the evil thereof," or our own 13th or 14th century ancestors, who thought it wicked for mortal man to try and outvie in wisdom the everlasting gods? When we have all learned to fly, shall we be happier for it, or will future "Punches" have no future Briggs to record and laugh at?

Most of us are busy, or hope to be busy, with the New Year. Why it begins with what is generally its coldest season, most of us have learned, though many of us forget. A man who judged by his bodily sensations alone would think the times were growing worse, for in January they are commonly worse for most purposes than in December, and far worse than in the February that follows. This year, however, the cold will have to hasten if it is to stop the work of excavation, and put a ready-made reason into contractors' mouths when they are worried to explain why the buildings do not begin. A wise secretary, or at least, a cunning one, will take care to forget the answer before the hot weather comes, and the time arrives for laying all possible blame on the architect, in hope of bringing about his disgrace and removal. There is usually another architect, or more likely a dozen architects, ready to step into his shoes, though they may not be equally ready to step out of them when the time comes. Shamelessly, they will be appointed (as members of the congregation), but not so shamelessly will they retire; and after each one's retirement, there may be a few sittings to let, if it is a church or chapel that is in hand. If the R.I.B.A. were worth the subscriptions that are paid to it, the rascals who make up lists of faults, for which they hope to get architects removed, would find their living a harder one, and themselves in a more dangerous position. "There are tricks in all trades" it is said, and one trade is a jumble of tricks, whatever it is in getting people into it or out of it. Some day a man with a little money and a strong will may be able to alter this, and the Church will no longer be the derision of the World. Until then it is decidedly a place to fight shy of.

When did the "restoration" of village "churches" begin? Is it not time a book was published about it, saying where the money was raised for it, who appointed the architect, and what he did with it, or what the committee did, or got done? This does not concern Dissenters only. Some twenty or thirty years ago we happened to inspect an old and very interesting house with an older and more interesting church attached to it, which a younger and most interesting architect was preparing to restore on the spot. New flooring-tiles were going to replace the old ones—some with 15th-century patterns, and some of a more modern type. Did the favourably-named architect really restore the church (perhaps with the house to follow); did he really wed the apparently predestined bride, or was the whole affair "Diis aliter

visum"? Since then we have seen neither the lady, the gentleman, the house, nor the church, and so have no later story to tell. We can only hope that it all ended well. This Christmastide an old friend sent us a photograph of Withington Church, a good forty miles ride from that last referred to. It was evidently restored, and carefully restored—with local stone and in the local manner. The old traceries, and even the old copings and finials, were carefully copied, and have not begun to decay yet. But the odd thing about it is the presence of a narrow aisle on the north of the main clerestory, perhaps 5ft. to 8ft. wide, in the clear. An architect to whom he showed the view, and who had the luck to be articulated to a church-building architect before architects who understood church-building died out—been swept away as yet by Salvationist substitutes—and this one of their few and fast-passing successors declared that he did not know that an old example in this country remained of so narrow an aisle without pews in it. The late Mr. Brooks's church of St. Columba, Kingsland, was one of the first, and internally one of the finest, of our modern narrow-aisled churches; but how many there have been since!

The Withington Church has a rather fine central tower, a little earlier, or more likely a little later, than the 14th-century time of the "Black Death" epidemic, after which our 14th-century carpentry died out, or seemed for a while to be dying out. The history of it, if we could trace it, would be worth writing even now. But the men who could have written it mostly perished in it, and probably, had they lived, must have left it to be described by reader writers. With it, in most of our towns, the Second Pointed style ended, and after it the Third Pointed style began, with few followers, who at first had fewer ideas. As time wore on, ideas multiplied, and when that way of building was nearly obsolete it was in this respect almost at its richest and best. Old tombstones are few in this country, and fewest of all at such a time, when in fear of replanting germs of the Black Death plague, fewer old memorials than ever would be taken from the parishes it had devastated, and carried to others in which it was almost unknown. If we had a record of what burst on a middle-sized town during the days of this 14th-century visitation, in Mr. Pepys's own style, it probably would not differ very much from his account of the early days of the Plague of 1665-6 in London. In August, 1665, he "noted a maid servant of Mr. John Wright's falling sick of

the plague; she was removed to an out-house, and a nurse appointed to look to her: who being once absent, the maid got out of the house at the window, and ran away. The nurse coming and knocking, and having no answer, believed she was dead, and told Mr. Wright so; who, and his lady, were in great straits what to do to get her buried. At last they resolved to go to Brentwood, being hard by, and there get people to do it. But they would not. So he went home full of trouble, and on the way met the wench walking over the common, which frightened him more than before." "The people die so, that now it seems they are fain to carry the dead to be buried by daylight, the night not sufficing to do it in. The King and Queen are speedily all gone to Milton. So God preserve us!" "How sad it is to see the streets empty of people. My poor Lord of Hinchinbrooke's indisposition is turned to the snailpox. Poor gentleman, that he should be come home from France to fall sick, and of that disease, too!" "In the City died this week 6,102 of the plague; but it is feared that the true number of the dead this week is near 10,000, partly from the poor that cannot be taken notice of, through the greatness of the number, and partly from the Quakers and others that will not have any bell rung for them." This was on August 31, 1665. By August 31, 1666, the Great Fire of London was on the point of breaking out, and the plague was rather getting out of notice. This was the end of Old London. The weather was fine, and the people whose houses had been burned camped out in the fields. In this way "The end and the beginning vex." The reason: many things perplex. With motions, checks, and counterchecks." But even at the Great Plague of London it was already about four centuries since the "Black Death," and nearly three on to the cholera years of the 19th century, which we now hope will never come again. In all these years sanitation must have been at its lowest. Now oak houses are no longer built, nor even fir ones, and most brick ones get ruinously out of repair on a ninety-nine years' lease. We know what stoppages of drains are; but there must have been worse things than these in the good old days. Perhaps there will be worse things in days to come, and perhaps we are preparing future evils, as London did before 1665-6. Perhaps a nation needs to be carried away every few hundred years, and to be buried, either in darkness or in daylight, if it is to spring up stronger than ever from new roots and suckers. Perhaps the world is not old enough to manage itself (if it ever will be), and perhaps it does not know how much good it does its children when its elders are knocked on the head and carried off to the dwelling-places of silence. Nature, at fitting seasons, does all these things for us, and we "tremble and afterwards rejoice." By A.D. 1906 some of us will know perhaps, what unheard-of evils were awaiting us in "thin curtain walls" and "concrete and steel construction." A race of children, it may be, who were to grow up crippled from rheumatic affections of the bones, or consumption from tubercular affections of the lungs. It was not known till lately how much the old Egyptians bore from the first-named of these plagues, if not from both of them; and what befell them may in course of time befall us too. Let us tremble and beware.

ESTIMATING FOR REINFORCED-CONCRETE WORK.

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The use of reinforced concrete, as now understood, was seldom adopted in this country for ordinary buildings and engineering purposes until about 1892; but since that date it has made rapid progress, and is no longer looked upon as a freak material of doubtful value. Its qualities and characteristics have been subject to thorough investigation, so that when designing in this material, the details and sizes of the different parts of a structure may now be readily calculated and satisfactorily determined.

The strength, economy, durability, and efficiency of good reinforced concrete, together with the ease with which it can be adapted to suit the different requirements of building and engineering works, and the rapidity with which it can be constructed, are now universally recognised. The general use of this material has also been largely developed by the more uniform and stronger qualities of Portland cement now obtainable, as a consequence of the increased fineness of grinding and improved processes of cement manufacture. This factor, combined with the more careful and systematic selection, breaking, and screening of aggregates, and better mixing of materials, has resulted in the production of concretes having a strength and uniformity of composition which were previously unknown.

Reinforced-concrete work generally may be considered as having originated in France about 1855, when M. Coignet, a French contractor, in the construction of a series of arches, reinforced the concrete with a network of iron rods. Its use gradually extended in that country, and also in Germany, Switzerland, etc. Since 1880 reinforced concrete has been largely used in the United States for various constructional purposes, where its development was largely assisted by the high rates of wages for skilled labour in the building trades, and the readiness by which concrete construction could be executed by local unskilled labour under adequate supervision.

There is no doubt that for many years reinforced concrete was viewed with the utmost suspicion by engineers and architects, in consequence of the rubbish which formerly masqueraded under the name of "Concrete." Unscrupulous contractors apparently considered that an aggregate consisting of unscreened gravel and sand, or a miscellaneous collection of brick and stone debris, with adhering portions of the old lime-mortar, dust, and dirt, roughly broken, and containing a variable proportion of fine stuff, when mixed with water and a minimum quantity of inferior cement, and insufficiently worked and rammed in position, could be dignified with the name of concrete. Such a material is very far removed from the concrete which satisfies the conditions laid down by the trained engineer of to-day.

To a very large extent, the details of design for important reinforced concrete structures have been worked out by a few specialist firms, who, having developed and protected some particular system or form of reinforcement, were prepared to submit a general scheme of construction embodying those particular features. In some cases these firms executed the work with their own staff of experienced workmen; but more frequently the work would be sub-let to a local building or engineering contractor. When calling for tenders, the ordinary engineer or architect would therefore receive a number of estimates from

specialist firms for the execution of the reinforced-concrete portion of the work, and probably accompanied by as many different designs as there were estimates. The cheapest tender might be accompanied by a design in some respects unsatisfactory, whilst the more satisfactory design might be unduly expensive. It therefore frequently became a matter of difficulty to determine which tender was the most favourable in all respects.

A method now largely adopted is for the engineer or architect to prepare a design and general scheme for the whole work, and then obtain tenders from large contracting firms who specialise in reinforced concrete construction, or who undertake this branch in addition to ordinary building and engineering work. These firms maintain an experienced staff for the working out of details of sizes and strengths of reinforced concrete beams, floors, etc., on any desired system, and eventually submitting the necessary details of design with estimate of cost. This method, whilst convenient in many ways, has several disadvantages. The different designs are not all arranged to give the same margin for safety and strength, and as a matter of prudence, it is necessary to subject the selected design to a detailed examination and check, to insure its suitability in this respect. Also every contractor tendering is put to the heavy expense of separately working out the details of the design as regards sizes and strength, taking out the detailed quantities, etc., before preparing his estimate. The successful tender must, therefore, not only bear the cost of such preparatory work, but also a proportion of the expense involved in the preparation of designs, quantities, and estimates for other competitions in which the contractor is unsuccessful.

Another method is to employ an independent and competent designer to prepare the necessary detail working drawings based on the system of reinforcement considered most suitable for that particular purpose. Detailed quantities may then be prepared by a quantity surveyor in accordance with the specification and drawings, and issued to a number of selected contractors for reinforced work, etc. By this means each contractor submits an estimate of cost on the same uniform basis, and the client obtains all the advantages of a competition under normal conditions.

It must be remembered that of all the many forms of building construction, the personal element enters to a larger extent in the construction of concrete and concrete reinforcement than in any other. Not only must the best materials and suitably experienced labour be available, but constant and intelligent supervision is essential in order to insure that the resultant product shall be of uniform character. Care should therefore be taken to allow only reliable contractors of good reputation, and who are experienced in reinforced concrete construction, to submit tenders.

In the execution of reinforced concrete works, arrangements are sometimes made with a contractor to execute the work on the basis of charging the actual cost of materials and workmanship, with an additional allowance or percentage on the total cost to cover the expenses of establishment charges, use of machinery and plant, and contractor's profit. This system usually ensures sound materials and workmanship, but is comparatively costly. There is not the same incentive for the contractor to exercise close supervision

The death occurred at Hull, on Tuesday, of Mr. Richard Sargeant, a retired builder, and a well-known townsmen.

in the prevention of waste of workmen's time, or materials, as in contract work. No definite estimate of cost can be obtained before the work is commenced, so that frequently the total cost is considerably in excess of the anticipated expenditure. The ordinary system of obtaining competitive tenders from selected contractors gives, on the whole, the best results as regards quality of work, combined with reasonable ultimate cost.

General Principles of Construction.—Ordinary concrete possesses considerable compressive strength, but is extremely weak when subject to tensile stresses. Steel, on the other hand, has great tensile strength. As the coefficient of expansion and contraction for both materials under changes of temperature is practically the same, it has accordingly been found practicable to arrange them in an intimate relationship so as to form a convenient composite building material without producing any internal and mutually destructive stresses in consequence of such union. Reinforced concrete, therefore, consists of ordinary concrete, in which is embedded steel, or other metal bars, etc., the whole being so arranged that the latter material is called upon to resist the tensional and shearing stresses, whilst the concrete is designed to withstand the compressive stresses. If necessary, the strength of concrete to withstand compression can also be enormously increased by the addition of suitable metal reinforcement, and this is frequently done in the construction of pillars, piles, etc.

Although the term "reinforced concrete" is now generally adopted, various other names have been applied to this composite material, such as "concrete-steel," "armoured concrete," "ferro-concrete," etc. In France and other Continental countries it is known as "béton armé."

MEASUREMENT OF REINFORCED CONCRETE WORKS.

For convenience in pricing bills of quantities, etc., the various items of materials and workmanship should, as far as possible, be separated into trades, and grouped therein, according to their respective descriptions. By this means a contractor can prepare a close estimate with a minimum loss of time. The following notes indicate the system usually adopted in measuring reinforced-concrete works.

REINFORCED-CONCRETE BUILDINGS, ETC.

Foundations.—The concrete is measured at per yard cube, giving proportions and full description, including lowering to position. When under 12in. thick, the concrete to be kept separate and so described. The steel-rod or bar reinforcement to be measured at per cwt. (billed in "Smith's Work"), giving description, including fixing in concrete. Steel netting or expanded metal reinforcement to be measured at per yard super, including fixing in concrete.

Ordinary Pavings.—At per yard super., stating thickness and nature of finishing, whether floated and trowelled to a smooth surface, spike-rolled, or finished with superior materials of cement and granite chippings (1 to 2), and 1in. thick, including floating and trowelling to a smooth surface, etc.

Surface Channels.—Measure at per foot run, stating the average girth, or the width and average depth. Dishings around gullies, stopped and rounded ends, angles, etc., to be numbered.

Concrete Floors.—Measure the floor-slabs at per yard super., separately detailing the different thicknesses required, and stating the height or number of the various floors to which the materials must

be hoisted—viz., ground floor, first floor, second floor, etc.

The floor-beams to be measured at per yard cube, stating the height to which the material must be hoisted. Beams or girders under 144sq.in. in section to be kept distinct, and described accordingly. Chambers, beads, mouldings, etc., to be measured as extras at per foot run, and stops, mitres, etc., to be numbered.

Flat sheeting or centering to floor-slabs to be measured at per yard super., including all strutting, fixing, and removal. Centering for arched concrete floors to be girthed on soffit, and billed at per yard super. Casings or forms to floor beams to be separately billed at per yard super., and described accordingly, including strutting and removal.

In measuring floor-beams, an alternative method is to take them at per foot run, giving size and detailed description, including providing, fixing, and removing all casings, forms, moulds, etc., complete, the metal reinforcement being billed separately.

Where concrete floor-slabs are supported on ordinary rolled steel joists of greater depth than the thickness of the floor-slabs, the concrete stilted required to the bottom flange of the joists is measured at per foot run, giving the depth and thickness of stilted on each side of the joist. Forming concrete skewbacks on steel joists for concrete arches is similarly measured and described.

The finishings to surfaces of floors are measured at per yard super., and described according to requirements as "levelling and floating surface of concrete floors to receive wood-block flooring, asphalt, etc." Or the surfaces may be finished with granite chippings, etc., as described for "Pavings." Measure the cement rendering or plastering to soffit of floor-slabs at per yard super. Plastering to floor-beams to be kept separate from that to floor-slabs, and described accordingly. Labours to arris, chamfers, beads, etc., to be measured at per foot run, and all stops, mitres, etc., numbered.

The metal reinforcement to floor-slabs to be measured as previously described, including hoisting to ground floor, first floor, second floor, etc., as the case may be. The reinforcement to floor-beams to be similarly measured and separately billed in the same manner.

Painting, whitening, colouring, etc., to ceilings, beams, etc., to be measured at per yard super.

Concrete in Spandrels over Arches.—To be measured at per yard cube, stating description, height to be hoisted, etc.

Piers and Columns.—Measure the concrete at per yard cube, describing it fully as concrete in reinforced piers, columns, etc., including hoisting to ground floor, first floor, etc. If in columns under 144sq.in. in section, the concrete to be billed separately. Casings and forms to columns to be measured at per yard super., giving full description, and stating whether square, rectangular, or circular in section. Chamfers, rounded angles, beads, grooves, etc., to columns are taken at per foot run, numbering the stops, mitres, etc. Caps, bases, bands, etc., to be numbered as "extras" to columns, giving size and detailed description of requirements.

The steel reinforcement to piers, columns, etc., to be measured as previously described, and billed separately, including hoisting to the various levels as required. Plastering, colouring, etc., to be measured as already described for "concrete floors."

An alternative method is to measure the concrete in piers, columns, etc., at per foot run, including all moulds and casings

complete, each size and description of column being separately specified in detail. The steel reinforcement, together with any special features, such as bases, caps, etc., to be separately measured, and billed as already described.

External Walls.—The concrete in supporting piers to be measured at per yard cube, including hoisting up to first floor level, second-floor level, etc., as the case may be. Cases and forms at per yard super., without any deductions for floor and window openings; steel reinforcement at per cwt., giving the height or floor at which the casings are fixed, and to which the reinforcement must be hoisted. All extra labours to mouldings, string-courses, etc., to be measured at per foot run, stating the girth and description. Surface finishings and special features to be measured as already described for "piers and columns."

The wall slabs to be measured at per yard super., stating the thickness, etc., and keeping the various thicknesses and heights for hoisting to different floors separate. The use of casings to wall slabs is sometimes included with the item for concrete in walls, including fixing and removal complete. When measured separately the casings are taken at per yard super. (without any deductions for door and window openings), and billed accordingly, stating thickness of walls, and whether measured on one or both sides, including fixing at the various floor levels, and removal complete. Moulds for window and door openings to be measured at per foot run, giving thickness of walls, depth of reveals, and other particulars. The steel reinforcement, and the internal and external surface finishes to concrete walls to be measured as already described for "floors," etc.

Internal Walls, Partitions, etc.—To be measured as described for "external walls."

Cast or Moulded Concrete Work.—Concrete formed in blocks, as for window-sills and heads, door-heads, lintels, steps, sills, channels, copings, stringcourses, cornices, etc., is preferably measured at per foot run, stating in detail the different sizes and descriptions, including all necessary moulds and patterns that may be required, and hoisting and setting in cement at the various heights or floor levels; any metal reinforcement that may be required, to be measured separately as previously described. Special blocks, such as pier caps, kneelers and apex pieces to gables, etc., to be numbered and described, giving sizes, including all moulds and patterns, and hoisting and setting in cement complete.

An alternative method is to measure all concrete block or moulded work at per foot cube, and describe it as "Concrete formed in blocks in window-sills and heads, door-heads, lintels, stringcourses, cornices, etc., of any size or section that may be ordered, including all moulds and patterns, and hoisting and setting in cement. All exposed faces to be neatly finished to a fair and even surface." Any metal reinforcement to be separately measured and afterwards billed in "Smith's Work."

Roofs and Concrete Flats.—Concrete in roofing slabs, beams, surface finishings—metal reinforcements, casings, centring, etc., to be measured as described for "concrete floors." Centring to sloping roofs, arched roofs, vaulting, etc., to be separately described, as semicircular, diamond, segmental, etc., including all strutting, fixing, and removal.

Staircases.—Measure the concrete at per yard cube, giving full description. Any rod or bar reinforcement to be separately

billed at per cwt., and expanded metal or steel nettings at per yard super., including fixing in concrete. Casings to soffit to be measured at per yard super., including strutting, fixing, and removal. Casings to risers, etc., at per yard super., and described as in narrow widths, etc. Extras for projecting and rounded or moulded nosings to steps to be measured at per foot run, including moulds, etc., complete. Returned and rounded ends to nosings, mitres to same, etc., to be numbered and described. Metal treads or other patent nosings fixed in the concrete to be measured at per foot run, stating width and full description, including forming rebate in concrete for same, and fixing complete. Surface finishings, rendering, colouring, etc., to soffit of stairs to be measured at per yard super. Handrails, balusters, etc., to be measured and billed in the usual manner, according to the materials and description.

Cast or spandrel concrete steps, when made in moulds and fixed separately, to be measured as previously described for "moulded concrete work."

Reinforced-Concrete Retaining Walls.—Concrete in foundations and in retaining walls to be separately described and measured at per yard cube, including hoisting, lowering, etc. Foundations or walls under 12in. thick, also concrete laid in tidewall, including protecting the exposed surfaces with canvas or boards, to be separately measured and billed. The metal reinforcement to be billed at per cwt. for rods and bars, and at per yard super. for expanded metal or nettings, and described as fixed in foundations, walls, etc. Casings and sheeting to be measured at per yard super., including all necessary strutting, fixing, and removal. Also state whether the sheeting is fixed upright, or with straight or curved battered face, curved on plan, etc. Any finishings to face of concrete walls to be measured at per yard super. and fully described.

Reinforced Concrete Piles.—Concrete to be measured at per foot cube, giving full description, including use of all moulds and casings complete. Concrete in piles under 144sq.in. in section to be measured and billed separately. Sheet piles to be similarly measured at per foot cube, giving width and thickness, and including use of all moulds, casings, etc., complete. The steel shoes and metal reinforcements to be separately billed at per cwt.

An alternative method is to measure and describe the concrete piles at per foot run, including metal reinforcement, moulds, casings, etc., complete. The steel shoes to be measured as "extra to concrete piles for steel shoes," giving weight and detailed description of same.

Driving reinforced-concrete piles to be measured at per foot cube, including pitching and planting piles in position ready for driving, and stating description of ground into which they are driven, etc.

If preferred, planting piles in position ready for driving may be separately described and numbered, giving details of size, etc., and including one move of pile-driving gear. When executed in tide-work, the planting of piles to be so described.

Piles driven from barges or floating stages to be billed separately from ordinary land-driven piles, or an additional item provided as "extra only for driving piles from barges or floating stages." An item for "allowance for bringing and erecting pile-engine, tackle, etc., on site of work, including removal at completion" should also be provided.

Sheet or small piles under 144sq.in. in section to be separately described and billed.

Decking to Piers, etc. The concrete decking, beams, surface finishings, metal reinforcement, casings, centering, etc., to be measured as previously described for "concrete floors."

Bridges.—The concrete in foundations, piers, abutments, arches, spandrels over arches, beams, floor slabs, surface finishings, metal reinforcement, sheeting, centering, forms, etc., to be measured in detail as already described.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association on Monday evening was held in conjunction with the Camera, Sketch, and Debate Club section. The chair was occupied by the President, Mr. Gerald C. Horsley, F.R.I.B.A. Mr. H. A. Hall, Hon. Secretary, announced that a visit would take place on Saturday, February 17, to the British Museum extension (by permission of the architect, Mr. J. J. Burnet, LL.D., R.S.A.), and that the annual dinner of the Camera, Sketch, and Debate Club would be held at the Café Monico, Piccadilly, on Friday, February 2 (this evening). Messrs. B. R. Hebblethwaite, H. J. Higgs, J. H. Jacob, and H. S. Stephens were elected as members. On the motion of the President, a vote of thanks was accorded to Mr. G. A. Mitchell for conducting a party of members round the new Polytechnic, Regent-street, on Saturday afternoon last.

THAT MODERN HOUSE PLANNING DOES NOT TEND TO OVER-ELABORATION.

A paper opening a discussion on this subject was read by Mr. A. G. R. Mackenzie.

There is no doubt whatever, observed the author, that modern house-planning yearly becomes more elaborate; but the question which it is proposed to discuss to-night is not the amount of this elaboration, but whether or not it is carried to excess. It is essential, in considering the question which is before us, to remember the stages through which house-planning has passed, and in doing so to realise that the whole development is part of a natural growth. I think so all the more because remembering this helps us to take a broader view of the whole subject and not to hastily reject forms of building which have so naturally come down to us that they appear unimportant; and, on the other hand, not to be afraid to carry this development further—to carry it on in its logical course. Of all the characteristics of the modern house, the most striking, when compared with the planning of former times, is the multiplicity of purposes which it serves. Keeping pace with our more complicated ways of living, we have not only increased the number of rooms, but have assigned to each a special purpose. Instead of the hall and single chamber of the Middle Ages with which even kings were content, every ordinary house must have a number of separate bedrooms, at least three public rooms, and a complicated arrangement of servants' offices, as with the development of civilisation we could not now live in those old palaces in which the only communication for a suite of rooms was by passing through each in succession. On the advent of prosperity in the times of Elizabeth, before which the domestic arrangements were negligible, the system of planning was revolutionised; the house, however large, was made one by connecting all the parts together by means of corridors or galleries. It was to this period that Mr. Norman Shaw reverted in forty years ago when he awakened the architectural world to the realisation that modern houses could be planned with a spirit of the ancient work and with all the comforts which modern conditions demand. It is to Mr. Norman Shaw also that to some extent the initiation of the recent movement of the planning of smaller houses may be traced: at any rate, he was the first to realise the possibilities of the

good architectural treatment of the smaller suburban house, which now that garden cities have come into existence has become so important a subject for the man in the street as well as the architect. I regard elaborate planning as not necessarily leading to elaborate results. That is to say that a house which looks the simplest in the world may, to attain this simplicity of effect, have involved much elaborate planning on the part of the architect. An elaborate house is not the same thing as an elaborately-planned house: the one conveys the idea of complication, the other simplicity in its considered result. We are not considering whether simplicity is a merit in itself, but whether over-elaboration is a demerit, and what I contend is this: that it is impossible to be over-elaborate on good houses; although an elaborately-planned house does not always bring simplicity, a house that is planned without due elaboration or consideration of detail certainly can only bring simplicity of effect by the sacrifice of comfort. Bacon says somewhere in one of his Essays—"Houses are built to live in, not to look upon." The ideal house is, firstly, one which is comfortable to live in, and, secondly, fair to look upon. The one follows the other. Of the works of man that approach more nearly to Nature in their perfection one may instance sailing ships: these have not been designed to look beautiful, but have become so by the process of elaboration and elimination which has continued through centuries till this ideal has been reached. And so it is with house-building: the planning is the key to the situation, and it is by elaboration and elimination of everything that has not a *raison d'être* (for elaboration includes elimination) that the perfect house is attained. That there are numerous examples of over-elaboration is true; but that some have fallen into traps and been misled by the wayside does not affect the general forward movement. When Professor C. H. Reilly, at the Architectural Congress, made his plea for a more classical treatment of the garden city, I confess I was captivated by the idea, and saw in my mind's eye relief from continual picturesque bits and fussy detail. (It is curious how pleased one is with one's own happy thoughts in picturesque features and how impatient one is with other people's.) I was captivated by the idea of a Georgian garden city designed with due regard to axial lines and symmetry. That great dignity can be obtained by axial planning goes without saying; the architects of the Georgian period knew this, and those who follow them now recognise the value of vista and balance. How far this can be carried, however, in the smaller house is to my mind a very debatable question: though Mr. Geoffrey Lucas and others have succeeded, I very much doubt if they are on the true road to the ultimate solution of the problem. An elaborately-planned house to my mind one in which everything is considered so that waste of material and useless space is reduced to a minimum. This is particularly true of smaller houses. Indeed, the smaller the house the more elaborate should be its planning. As an illustration, I would take the suggestion of cupboards. In small houses inhabited by people of moderate means it is much more necessary to fit in cupboards to every possible nook or corner than it is in larger houses where space is not so valuable, because in the former case not only is every inch of space required, but the cost of purchasing furniture, such as wardrobes, becomes a consideration. In the larger houses, the elaboration of planning would probably consist in fitting the cupboards in to suit the decoration. The development of the garden city has led to the study by architects of small houses, and the elaboration of planning which has followed has all been to the good. If we compare even of the best or even the average house designed by architects at the recent exhibition at Gidea Park with the builders' erections of ten or fifteen years ago, it is ludicrous to maintain that there is any tendency except that towards improvement. Two houses in Gidea Park give an excellent illustration of my con-

tention that elaboration leads to apparent simplicity, and showing how misleading it is to talk about a simple little house as if the simplicity was attained by obvious methods. They show how by an elaborate arrangement of chimneys and clever distribution of the rooms a very simple external effect is obtained combined with a very warm house in winter, there being no waste of heat whatever. Incidentally, I should like to remark that the fact of a fire being near the door in a small bedroom is no disadvantage, as it leaves the whole of the wall-space for a convenient distribution of the furniture, and is shown more simple to plan a house such as is shown in my third illustration, also taken from the Gidean exhibition, with all the chimneys in the walls and the scullery projecting behind in the usual way. Although the author of my first illustration has described it as "planned in the simplest possible manner," I think he will agree with me that it would have been more truthful to have said, "Planned with much thought and elaboration, eventually arriving at a simple result." In small houses the elaboration in planning that is necessary and desirable is chiefly directed towards obtaining an efficient result with the minimum of space and expense. The space occupied by lavatories I have often thought could be further economised by making them the size of those in any ordinary corridor carriage, and using the special fittings made for that purpose. Mr. Geoffrey Lucas has kindly allowed me to show his prize house at Gidea Park to confirm my contentions. In the larger houses of to-day the same principles of planning are being applied, though the object of the elaboration may not necessarily be directed so much to questions of economy as to additional luxury. I take it we are not here to discuss whether or not people should lead simple lives: we must take our clients as we find them, and the question which architects have to solve is, how to satisfy the country squire can be solved in the requirements that simple, dignified, and beautiful house can be built for him, as how to build him a house and still give him all the conveniences and luxuries he desires. By the facilities for intercommunication now available, among other reasons, life in country houses has become much more complex than it was in the past. People are continually coming and going, and the house has to be so planned that they can do so with the least inconvenience to themselves and others living in the house. The fact that ladies now take a much greater part in life generally, and are not banished to their withdrawing rooms, has led to the development of the hall, where they can meet the men and both can come and go without formality. That this apartment has to be in reality a sitting-room, sheltered from draughts, and yet apparently merely the entrance-hall to the house, has led to the necessity of planning. The necessity for bathrooms and sitting-rooms which may or may not be used in connection with each other also leads to further complications. The desire for unlimited fresh air is a consideration which is daily becoming more urgent. No one now sleeps with his or her window shut, and the fresh-air habit, like any other, tends to grow. To a person like myself, who habitually sleeps with both windows and door wide open, it is perfect torture to be shut up with the door closed in the morning with the feeling of oppression that want of fresh air gives; it is all a matter of habit, and this habit is on the increase. Very soon the desire for open windows will lead, as it already has done in America, to the provision of sleeping balconies attached to the bedrooms, surrounded by a dwarf wall and open on two or more sides, so that by means of shutters the side sheltered from the prevailing wind can be left open and the others closed. When the door has been provided, I prophesy that the next demand will be for places where one can take an air or sun-bath. There is nothing more delightful and, as many authorities now agree, more health-giving than to expose the whole of one's skin to the sun or, at least, to the air. This is impossible in our climate without the

erection of shelters or screens, and I foresee that greatly additional elaboration of planning will be required in the future to provide such spaces, either attached to the water bathrooms or forming adjuncts to the sleeping balconies. Whether the conjecture be right or not is a matter for the future; but there can be no doubt that the subject of domestic architecture is one which interests us as English architects more nearly than any other. If one looks for fine general planning and magnificent public buildings, designed on a scale to impress the mind with the grandeur of the nation, one is disappointed, for it is in domestic architecture that England excels, and I claim that it is by continual study and elaboration of planning that this reputation has been built up, and it is by that alone that it can be maintained in the future.

In opening the discussion on the paper, Mr. G. H. Jenkins said he proposed to show that modern house-planning tended to over-elaboration on the wrong lines. He would digress for a moment from his main argument in order to controvert a heresy which he thought was being propagated by certain of the younger school of architects, the heresy that beauty was only a side-issue, a something which could not be obtained by effort, but which, like fame, as portrayed by Keats in one of his sonnets, "will still be coy to those who woo her with too slavish knee." He hoped that architects worthy of the name might fairly claim to be regarded as being artists as well as men of business. A house would not be comfortable if it was not large to look upon, for if everything was displacing to the eye, peace of mind would not accompany ease of body. The lecturer had instanced sailing ships as having approached nearly to Nature in their perfection, and had stated that they were never purposely designed to look beautiful, but had become so by chance, in the process of development. He stated that, strictly speaking, he would not maintain that a thirty-five knot destroyer was as effective in her lines as Lord Brassey's "Sunbeam." Mr. Jenkins proceeded to argue that the cultivation of an appreciation of the various forms of beauty in art was worthy of being placed in the forefront of those attainments which should form the equipment of every artist, whether architect, painter, sculptor, or craftsman, and it was in proportion to such study that the artist attained a full share of real greatness. A man might have great knowledge of technique, forms of material, and workmanship, and yet the result of his labours would be universally condemned if he had not added to it a knowledge of charming composition, beauty of line and mass, appreciation of good colour, and all those attributes which had nothing to do with fitness to purpose, but solely concerned themselves with appealing to the eye. People nowadays were fond of collecting beautiful old utensils of bronze, copper, brass, or iron, but he could not conceive of anyone adding to it a double-lined saucepan, although it had been proved to be most perfect for its purpose in cooking. He contended, therefore, that the modern house was insufficient, unless so elaborated as to insure its being beautiful as well as convenient. But beauty was only a secondary consideration instead of being of equal importance with convenience in procuring the ideal home. At the present time a large and increasing section of the community believed that our streets and buildings should be made to fit the small climate of America. Further, he held that the elaboration of modern house-planning tended more to the multiplying of unnecessary conveniences than to the elimination of needless features, both inside and outside. It was much more difficult to eliminate than to do the reverse; but there could be no doubt that this was the right pathway to success in planning. We had not the same climate as America, and he doubted, therefore, whether it was necessary to provide, as Mr. Mackenzie had suggested, such things as open-air sleeping apartments in England. He could quite understand that everybody in America desired to live out of doors at certain

seasons—for instance, when there was a heat-wave. But we had not such things in England, and to require the provision of open-air sleeping apartments would therefore only add one more terror to the architect's life.

Mr. H. H. Wigglesworth thought it must be admitted that there was a certain amount of over-elaboration in some recent inventions, and the number of pipes now required in a house demanded serious study on the part of the architect to dispose of them satisfactorily. The excellent lines in a modern house, like those in a sailing ship, had been evolved by patient study of the practical necessities of the problem, and any architect who set himself to master the conditions to be met was bound to attain a certain amount of beauty in his house-planning by the attempt to express his practical ideas.

Mr. Geoffrey Lucas remarked that there had been a steady evolution in house-planning based on traditional methods coming down from Medieval days, when the central hall was a long rectangle, with an open fire, at first in the middle, and afterwards built against one of the sides. The process of subdivision into apartments had been steadily going on until corridor approaches to every room had become necessary and universal, and bathrooms and sanitary accommodation were multiplied. Although the present house-planning was simple, it was really the result of much thought and study, and it was a fact that the very elaboration of planning tended to simplicity, as architects realised what could be eliminated from the design so as to render it compact. The like process was evident in the drawings of the late Phil May, which apparently consisted of a few lines dashed off, but really represented a long and tedious process of thoughtful elimination of every line that did not tell in the perfected sketch. As to the houses at Gidea Park, they were planned on simple lines, but were not intentionally picturesque. It was quite easy to plan a so-called artistic house, with odd corners, long sloping roofs, angle corners, and the like, but it was not economical. To plan on a central line, with a carefully-balanced design, was a much more difficult task, especially on a site of limited area and for a dwelling of limited scale. In a symmetrically-treated small house, proportion and form were of far more importance than in the picturesque cottage type of building. If architects were going to make progress in house design, it must be, he thought, with a certain amount of culture and a certain amount of devotion for the historical, the traditional, and the picturesque, in the rejection of certain features, such as the angle nook. He did not feel so sure of the analogy of the sailing ship's lines in the anticipated growing picturesqueness of our houses. For example, our municipal buildings were growing more complex, but they did not approach the picturesqueness of some of our older towns, or such edifices as that just named could not pretend to furnish the accommodation now demanded. The fact remained that simple domestic house-planning was far more difficult than picturesque grouping.

Mr. T. L. Dale could not agree with the views expressed by the lecturer. The aim of those who organised competitions for garden city dwellings was not to obtain a better and more convenient plan of house, but to cheapen one. These persons benefited by the labour and thought put into the evolution of these designs for garden city dwellings were the enterprising people who were creating these suburban estates. Those who designed a house to cost £375, on which at least £500 ought to be expended, merely enabled the promoters of garden cities to raise their ground rents. The endeavour to produce houses at the very lowest possible cost was not to be commended from the architect's view-point. From the artistic point of view, the tendency to over-elaboration was apparent in every direction, and the strained effect was painfully apparent in too many house designs of the present day.

The secret of the charming appearance of old women's houses of former generations was due to the absence of obvious effort in their design. After all, in a house, the client was the man to be studied; the building owner did not wish nor intend to be annoyed all his life by the funny little jokes of the architect. The strain of competition tended to take all the pleasure out of the life of this professional man who went into these contests. As for the scientific axial planning advocated by Mr. Lucas, it looked to him inhospitable and unlovely, with its long, straight corridors, and direct approaches to the principal rooms.

Mr. H. V. Astley remarked that modern house planning was seldom elaborate, and never over-elaborate. The designs of houses in the 17th and 18th centuries were more elaborate than those of the present day; these old residences possessed an appearance of dignity, but those designs failed to work out the details of the lower and upper floors which would have added to the comfort of the occupants. House-planning had been greatly improved during the last twenty years; but to suggest over-elaboration seemed to him incomplete, and to suggest simplicity to our architects that they had attained the limit of their powers, and that further progress was impossible—a deplorable proposition. The requirements of a modern house were becoming more onerous and more numerous, and these involved more laborious working out on the part of the architect, in such matters as the laying out of site, the study of aspects, the treatment of levels, the arrangement of a dignified arrangement of rooms, the right position and size of windows, and the economical planning of sanitary arrangements. The more architects studied and elaborated their planning, the more simple would be the result.

Mr. A. E. Bullock said there were in stances of small houses of much picturesque design by architects who had not studied the simplicity of plan that had been advocated that evening; some of these were very picturesque and extremely pleasant to look at from without, but proved inconvenient to the tenants on account of the projecting beams and arches in various rooms. The older house design was of two classes—the Elizabethan type with ensembles, and the Georgian type with sash windows. In the latter type the planning was more formal and more convenient.

Mr. C. J. Boucher believed that the evolution of house-planning had made for greater simplicity and comfort. It was easy to emphasise the picturesqueness and pleasantness of old women's houses, but the modern architect had to consider his client's wishes and the restrictions of local by-laws.

A Member said one defect in the houses reserved in garden city estates was the variety of material employed in one house, which made neither for economy in construction nor for utility of life.

Mr. W. Curtis Green remarked that many of the best-planned houses had been produced under conditions unfavourable to the architect. The older houses were not designed, but were built; they were straightforward in plan, and of picturesque appearance, soundly constructed, and they were put up by very excellent craftsmanship. The design of small houses had been very rapid and proceeded in very simple lines. The planning of a small house was an extremely interesting problem, which ought to be brought out by architects, the factors observed to their elements.

The speaker's movement was, he believed, a decided one in the direction of a desire to make houses more rather suspicion of simplicity and uniformity; these, although necessary for comfort in the home afterwards, had had house-planning, for they filled the houses with a sense of the by and by. In the past, there were only a few old-fashioned houses, which occurred naturally.

Mr. W. J. Adams said the young architect, when he came to the house, particularly the place of the architect, but it is not at all startle. That is, it might be taken to heart by many house-planners with good results. Architects did well to study their work very thoroughly; the charming effect of old

cottage design was almost entirely a question of roofs.

The President, in closing the discussion, remarked that every architect must view the question of elaboration in design as one of the taking of infinite pains in working out one's own problems. In the discussion that evening the question of the large house had not been much touched upon. The house architect should endeavour to produce a fine dignified plan, well proportioned and conveniently arranged, but even when this was achieved there were several minor difficulties to be considered and dealt with. The numerous bathrooms now required in a house presented a difficult problem in the disposal of the various pipes, which, unless carefully grouped, detracted from the appearance of the residence.

Mr. Jenkins mentioned that one mode of dealing with the multiplicity of pipes was to provide a chase in the external wall and to stack the pipes one behind the other in it, encasing the soil-pipes in heavy leadwork, and carefully grouping all together.

Mr. Mackenzie briefly acknowledged the vote of thanks, which had been carried by acclamation, and observed that the very fact that those who had given most study to the planning of small houses were dissatisfied with the present method of building showed that progress and evolution were still going on.

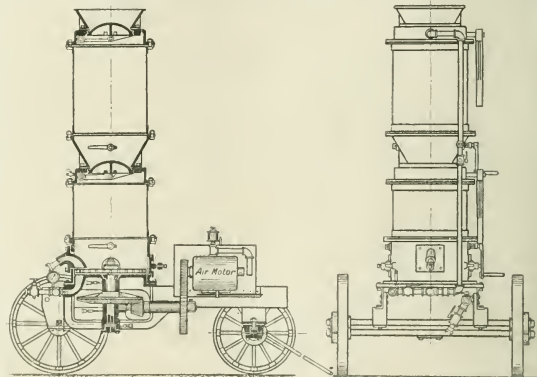
THE CEMENT GUN.

We gave, in our issue of March 31, 1911, some particulars of the "Cement Gun," by means of which, utilising the agency of compressed

cement mortar to serve as a plastic base, in which they finally become embedded. The mixture is then built up upon the film to any thickness desired.

An important feature of the apparatus is the method of regulating the discharge of sand and cement. At the bottom of the lower compartment is a large feed wheel, with deep notches around its entire circumference, and upon the speed of rotation of this depends the rate at which materials are discharged. The wheel is revolved by a small compressed air motor, and the small charges of sand and cement or other mixture collected in the notches or pockets around its periphery are fed successively into the rapidly-moving stream of air issuing from the inlet connection. The material is blown through a curved outlet, and thence passes into the hose line which supplies the discharge nozzle. The quantities of air required for the operation of the machine and of water for hydration of the cement depend, of course, upon the conditions of working, and are under absolute control. That portion of the nozzle which is exposed to abrasive action is lined with a suitable composition, so inserted that it may be readily replaced.

It is claimed for "gunite"—the name given to the product of the machine—that it is exempt from the criticism usually urged against plastic materials—namely, their lack of uniformity, due to methods of mixing and application. The fact that, in the cement-gun process, hydration takes place in transit and immediately before and during placement results, it is held, in the initial set, or crystallisation, occurring where it is



air, concrete, or any cementitious material, is delivered to the surface desired to be coated. In the last number of the *Engineer* a full account appears of its construction and application, from which we extract the following:—

The apparatus, which is being introduced by the General Cement Products Co., of New York, is illustrated in the figure herewith given.

Its essential parts are two steel hoppers, or compartments, from the bottoms of which dry cement and sand, or other materials, are ejected by compressed air through a hose-pipe. At the discharge end of this is a nozzle, to which another and smaller hose supplies water, also under pressure. The hydration thus takes place while all the materials are in motion, and the resulting mixture, leaving the nozzle, is "shot" upon the surface to be coated, or into the interstices of any aggregate. The mortar issues from the nozzle orifice in the form of spray, and at a velocity of about 350 ft. per second, with the result, in the first instance, that the coarser grains of sand rebound from the surface pointed at, leaving a thin film of fine

most desired—on the surface to be protected, and not on the mortar board. Other circumstances placed to the credit of the new method are the tendency of the sand grains, which first strike the metal, to clean off rust, and the assistance rendered by the forcible expulsion of surplus water and air to the creation of an exceptionally dense, homogeneous, and waterproof product. Of the respective breaking strength of best hand-made and cement-gun made bricks, a recent test may be quoted. Bricks, 11 in. by 3 in. by 8 in., made of a mixture of one part cement to three parts sand, were exposed to moist air for one day and immersed in water for twelve days, and then mounted upon round bars of steel 7 in. between centres. Above the bricks, in the exact centre of their length, was then placed another steel bar, sustaining a platform, upon which, first 23 lb., and then additional weights of 10 lb. each were piled. The result of the trial being that the hand-made brick broke at 303 lb., and the other at 533 lb. Other well authenticated tests, made by Westinghouse, Church, Kerr, and Co., show that gunite is twice as strong in tensile and compressive strength as any

hand-made mortars, and practically impervious to moisture.

Among the larger works to which the new process has been applied are the reconstruction of the Grand Central terminal yards of the New York Central and Hudson River Railway, New York City; the lining with a 2in. covering of cement mortar of the steel inverted pipe siphons—many of them 11ft. 3in. in diameter—for the southern division of the Catskill aqueduct; the treatment, to prevent disintegration and rock displacement by the action of the elements, of a section of the Bergen Hill archway, recently cut by the Erie Railway Company; the recoating with gypsum-stucco of the handsome front of the Field Museum of Natural History, Chicago; and, most important of all, perhaps, the protection of a considerable extent of decomposing rock in the Culebra Cut of the Panama Canal.

THE CENTRAL HEATING AND POWER PLANT OF MCGILL UNIVERSITY, MONTREAL.*

By R. J. DUREY, B.Sc., M.A.E., M.I.C.E.

Economic and other conditions have led, in many places, to the development of central plants for the distribution of heat to large groups of buildings, or to districts in towns, and these installations are in successful operation, both with and without accompanying electric generating-stations.

The present paper describes the arrangement and equipment of a central heating plant, combined with an electric-light and power station, designed to serve the various buildings of McGill University. Although only of moderate size, the installation is of interest on account of the somewhat severe climatic conditions and the unusual nature of the service. Attention is called to the fact that the economic possibilities of such a station depend very largely on the relation between the demand for heat and that for electric current.

The University buildings were, up to 1908, heated individually by their own steam or hot-water equipment, and took current from the local electric-supply company. The coal used for the heating service was necessarily of an expensive kind, and the cost of current was rather high. Economy and improvement in service, therefore, were sought by utilising cheaper coal in a central-boiler plant, and heating the various buildings from one source, employing for this purpose, as far as possible, the exhaust steam from electric generating sets. The buildings which will ultimately be served have a total volume of about 7,570,000 cubic feet; they contain 81,000 square feet of direct-radiation heating surface, need 185,000 cubic feet of warmed air per minute for ventilation, and require as a maximum about 475 kilowatts for light and power. The greatest demand for steam for heating and ventilation for all the buildings in cold weather would be about 30,000lb. per hour.

The station as at present working supplies current to eleven buildings, and heat to five, and the heating service will be extended to all the buildings as opportunity serves.

A brief discussion of the systems of heating and ventilation in general use in Canada for large buildings, and a description of the nature of the demand for steam and current for the University purposes, is followed by notes as to some of the problems arising in the design and construction of underground piping systems for steam and hot water.

The McGill power-house itself is not of an unusual type, its equipment including four water-tube boilers, three steam-electric generating sets, the necessary heaters and auxiliary machinery, and the ordinary apparatus for the switchboard and electric accessories.

The heat-distribution to the buildings being largely by means of forced-circulation hot water, as well as by steam, the heaters and circulating pumps are installed in the

engine-room, and are at present capable of supplying hot water to 60,000 square feet of direct-radiation heating surface. Means are provided for obtaining a record of the heat delivered to the heating systems of the various buildings.

The electric distribution is by underground cables throughout, the cables as well as the heat-distributing pipes being carried partly in tunnel and partly in conduit. Secondary heaters have been installed in two of the buildings, in order to avoid the expense of renewing their existing heating pipes and radiators.

The paper closed with a description of the methods of operation adopted, and the systems of temperature regulation employed, together with some notes as to working costs.

ST. AIDAN'S STATUE AT ST. AIDAN'S CHURCH, WEST HARTLEPOOL.

We give herewith a photo of a statue of St. Aidan in the niche of the tower of St. Aidan's



STATUE OF ST. AIDAN.
(Mr. F. W. DOYLE JONES, Sculptor.)

church, West Hartlepool, recently dedicated by the Lord Bishop of Durham.

The sculptor is Mr. F. W. Doyle Jones, of 5, Wentworth Studios, Manresa-road, Chelsea, S.W.

EAST ANGLIAN RURAL CHURCHES AND THEIR DECORATION.*

By WILLIAM DAVIDSON.

In opening the lecture, Mr. Davidson stated that in no other part of England, during the Middle Ages, had there been a greater activity in ecclesiastical architecture and

decorative and applied art than in East Anglia. Many fine examples of all periods of architecture from the pre-Conquest work, as at Great Dunham, to the great Perpendicular rural churches of the 15th century, such as Walpole St. Peter, Cawston, Sall, etc., were shown and described. The influence of material on the design was illustrated by the great prevalence of flintwork (no other building stone being readily available), built either as a concrete wall or used as a mosaic-facing in various colours. The frequent use of round towers was also held to be due to the same reason—lack of stone for corners and dressings. Of Norman work, the central tower of South Topham, the arcades at Castle Acre, Walsoken, Binham, Wymondham, Hales, and Hadleigh, and the doorways at Thwaite, Aldeby, South Burlingham, and Easton were described as fine examples. The beautiful parish church at West Walton, with its magnificent lich-gate and bell campanile, and the west front at Binham, were stated to possess as fine Early English detail as any in the country. The stone carving of the nave pier-caps at West Walton marked the high-water mark of such work in England. The Pilgrims' Chapel at Houghton-le-Dale was given as an exquisite example of Decorated work. In discussing the transition from Decorated to Perpendicular, instances were quoted which, in the lecturer's opinion, proved conclusively that these two styles were very much mixed up, as it was perfectly evident that much of the Decorated work was executed long after the birth of Perpendicular, showing that, even in the best and most traditional of the so-called "good old days," men were not above copying a "good old style." This mixture of the rigid and flowing lines gave the Perpendicular work in Norfolk a freedom and charm which was not to be found in work of the same period in other parts of the country. In speaking of the great churches of the 14th and 15th centuries, the main dimensions of a few were given, and the evolution in plan described. In the East Anglian church the chancel roof was usually lower than the nave (Long Melford and Southwold were quoted as notable exceptions), from which it was generally separated by a chancel arch and a wood-screen, and in some cases a window existed in the east gable of nave, over chancel arch. The loftiness of many of these churches, with their high clerestory windows, was shown by examples at Sall, Cawston, Upton, and Potter Heigham. Views were shown of the great towers at Sall, Cawston, Blofeld, Tunstead, Wymondham, Lavenham, etc., which in some cases Mr. Davidson considered, from their unfinished appearance, must have originally had a wood or lead lantern, such as we find at East Harling, Snettisham, Aylsham, etc. The walls of some of these towers were 7ft. thick at the ground-level. Many north and south porches with decorative flintwork and carving existed—among others, Worstead, Lavenham, and Kersey being mentioned and shown as good examples. The great wealth of fine fonts and font-covers was illustrated by many notable examples—Walsingham, Upton, Hadleigh, and Palgrave being specially mentioned; also the font-covers of various types, particularly those of Trunch and Sall, which showed traces of the original colour. A very special feature of the lecture was the numerous slides of single and double hammer-beam roofs, which, along with the wood-screens and fonts, were the glory of the Eastern Counties. Of the single type, Ludham, Potter Heigham, North Burlingham, Trunch, and Southwold were stated to be among the most beautiful in composition, line, and design. The magnificent double hammer-beam roof at Knappeton and Cawston were illustrated by many detail slides, giving a poetic impression of their beauty, under various conditions of lighting. The evolution in design from the stone roof was traced, and the various schemes of roof-painting given in detail. A short account was then given of the famous painted roof-screens of Norfolk and Suffolk, and many beautiful examples of the figure-painting shown, with details of mouldings and floral painted ornament. A description

* Read at the ordinary meeting of the Institution of Civil Engineers, Jan. 30, 1912.

* A lecture delivered, before the Leeds and Yorkshire Architectural Society, Jan. 25, 1912.

of the many colour schemes was given. Several schools of figure painters were shown to have existed, and the lecturer had no doubt whatever as to nearly all the work being that of English artists, though foreign influences were clearly evident—notably Florentine, Flemish, and German. The archaic influence of the Byzantine was said to have survived to a later date in the English Gothic than in the Italian—probably about a hundred years. In speaking of the screen- and wall-paintings, Mr. Davidson expressed the opinion that these do not seem to have been properly studied; otherwise the great beauty of many of these fragments would be pointed out more to students of decorative art. Mr. E. W. Tristram, of London, has, however, taken the study of English Medieval wall-painting up seriously, and it was to be hoped his fine collection of drawings and research would one day be published. On the Continent such work is done at the expense of the State. Many rooms at the National Gallery were devoted to Italian and other foreign schools; but we may hunt in vain for a solitary example of our own great Medieval school of decorative art. No one wished to see these paintings taken out of their right place in the churches; but there are many fine examples in the hands of private individuals, a few of which could surely be acquired for the nation. In concluding his paper, Mr. Davidson showed and described the work of various crafts, such as glass, iron, brass, and leather work, the fine quality of which showed how all the arts arose and developed with that of architecture. The Medieval church in East Anglia, at the height of its splendour, possessed a great architectural and decorative unity, and must have simply glowed with colour—tile floor, frescoed walls, painted screens, painted roof, and stained glass all blending harmoniously together. In such work we have a great heritage and inspiration; but under existing conditions it is difficult for even the best of men to do their best and to emulate such glorious work.

The lecture was illustrated by numerous detail drawings, water-colours, and lantern slides.

THE SAXON PORTLAND CEMENT COMPANY, LTD.

Notice is given, in pursuance of Section 188 of the Companies (Consolidation) Act, 1908, that a meeting of the creditors of the above-named company will be held at the registered offices of the company, Cambridge, on Tuesday, February 13, 1912, at 12 o'clock noon.

The company, of course, is only in voluntary liquidation in consequence of sale of the company's undertaking to the British Portland Cement Manufacturers, Ltd., whose capital will be approximately £3,500,000. The business continues under present management until further notice. Creditors' claims will be paid in full in ordinary course as they become due. Running contracts are to be continued as heretofore unless advised to the contrary. The winding-up is a necessary formality only; but a meeting of creditors must be convened according to Act, but it is not necessary to attend. Still, it is hoped, however, that creditors who desire any further information will attend the meeting and have further correspondence. Invoices and statements should be forwarded to the works as usual.

The Purbeck and Potworth marble pillars in the 13th-century portion of Rochester Cathedral—their arches, piers, and transepts and the nave—have been carved from the coats of Black and white marble, revealing the beauty of the material. The cost about £200, has been borne by Canon Ward.

The foundation-stones of a new Saxon-style school in connection with the Trevelyan-street United Methodist Society, Cambridge, were laid on Tuesday last week. About eighteen months ago the new church was completed, and the erection of a school on the rear of the church completes the building scheme. An accommodation for 260 children is to be provided at an outlay of £500.

OBITUARY.

The death is announced, at the age of 82, of Mr. William Glover, F.R.I.B.A., formerly of Newcastle-on-Tyne, and a past president of the Northern Architectural Association, but since his retirement living at "St. Helen's," Church-road, Southbourne, Hants. Mr. Glover died while on a visit to a friend's house in London, and was buried in the family grave at St. Andrew's Church, near Windsor. He was a generous benefactor to the Northern Association, and some time ago presented £500 to the committee of the Laing Art Gallery at Newcastle, the interest to be devoted to the purchase of pictures. A little while before his death he gave £2,000 to endow two beds at the King Edward VII. Hospital at Windsor; the institution further benefits under his will. Mr. Glover had been a Fellow of the Royal Institute of British Architects since 1889, and some years since served as a member of Council.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH SANITARY SOCIETY.—Dr. Drinkwater, lecturer on chemistry, Surgeons' Hall, Edinburgh, read a paper, at a meeting of the society on Friday night, on "Modern Treatment of Water Supplies." The lecturer showed how, by the increase of manufacturing industries, our rivers were not now available for domestic supply, and that our large towns had to draw their supply from upland gathering grounds and lochs a long distance from the distributing centre. In times of drought, like last summer, these sources were apt to deteriorate in quality and diminish in quantity. The chemical treatment of water supply was a new innovation, and he proceeded to describe the various methods which had been adopted. The theory of sand filters and the chemical changes which took place in a water during filtration were explained and illustrated by numerous analyses. The construction of mechanical filters and the use of coagulants such as alum were described. The use of alum on a soft water was condemned. The effect of "poliarite" and "oxidum" on waters, the Aqua Sana method of removing organic matter, and the use of ozone and sterilisation by the mercury vapour lamp, as employed in some Continental towns, were also referred to. Water softening on a large scale and plumbo solvency of certain waters were explained. Referring to alum, Dr. Drinkwater stated that alum had been used by the Edinburgh Water Trustees on the Talla water, which was largely peat water. Of what had actually been done there they were not certain. The Water Trust had not taken the general public into their confidence, and he thought the Water Trust were wise in not doing so. He could easily understand, however, that if any more alum was being used than the water would decompose, some of it might get past into the filters, and do very serious harm to pipes, especially to hot-water pipes.

GLAMORGAN ASSOCIATIONS WITH NEIGHBOURING CATHEDRALS.—The Cardiff Naturalists' Society was addressed on Thursday evening in last week by Mr. Edwin Seward, R.C.A., F.R.I.B.A., on "Neighbouring Cathedrals; and an Abbey embracing Glamorgan History." His remarks were illustrated by a fine series of lantern slides from negatives from Mr. J. Blount Hopkins. Mr. Seward recalled the interesting facts that the earliest Christian church in England was erected at Glastonbury, and the first British bishopric was that of Llandaff. Touching on the importance of Glamorgan in England's political history under the Normans and Plantagenets, and having touched upon the fine examples of Norman and Early English work, both in the churches and cloisters of South Wales and Monmouthshire, Mr. Seward went on to speak of Llandaff Cathedral, emphasising its points of architectural and archaeological interest. Thence he moved on to Gloucester and Tewkesbury, pointing out the close local connection of both these great ecclesiastical

centres in early days. Tewkesbury Abbey was a mausoleum for many of those who figured in the early records of Glamorgan and of Cardiff. Its monuments, as a whole, were unsurpassed in interest, save only by those of Westminster Abbey itself. Mr. Seward concluded with an account of Wells Cathedral, which he described as a "Te Deum" in stone, and explained the reason why its architectural glories had escaped the ravages of the iconoclasts at the time of the Reformation.

LONDON MASTER BUILDERS' ASSOCIATION. A council meeting of the London Master Builders' Association was held at the offices, Kohi-Noor House, Kingsway, W.C., at 4 p.m. on Thursday, Jan. 18, 1912, when the chair was taken by the president, Mr. G. Bird Godson. The finance committee's report was submitted, and the council, on the committee's recommendation, agreed to discharge in full, up to date, the claims made upon the association on behalf of the National Federation reserve fund. The Amalgamated Society of Carpenters and Joiners gave official notice to terminate the existing working agreement on June 8 next, and with the notice was forwarded a proposed new working rule agreement, which was signed jointly by the secretaries of the Amalgamated Society of Carpenters and Joiners and of the Furnishing and Cabinet-making Societies. It was proposed to hold a conference, with the object of discussing the recognition of the latter society, which the council had declined to acknowledge as a branch of the building trade. The council maintained its objection, and declined to hold a conference to consider the matter. The following were elected ordinary members of the association:—(1) Mr. B. B. Kington, Albert Embankment, S.E.; (2) Messrs. E. A. Roome and Co., 36, Basinghall-street, E.C.; (3) Messrs. W. Blay, Ltd., Dartford, Kent.; (4) Messrs. F. and F. J. Wood, 64, Cleveland-street, Mile End, E.; (5) Messrs. Lyle and Co., 12A, Trafalgar-square, Chelsea, S.W. Messrs. Arthur Newman, Ltd., Cranbrook-road, Ilford, E., was nominated as an ordinary member. It was decided to hold the annual general meeting on Thursday, February 29 next, and the annual dinner at the Whitehall Rooms, Hotel Metropole, Chancery Cross, on Thursday, February 22, and it is hoped that the president will be well supported by the members on both occasions.

A statue of Francis Bacon is being executed by Mr. F. C. Pomeroy, A.R.A., and will be set up early in the summer, in South-square, Gray's-inn.

The Mersey Docks and Harbour Board have decided to construct a new bridge, connecting the pierhead with the George's Landings-street, and remove the present No. 2 bridge to a position slightly to the southward. The estimated cost £5,000.

The New Ross Urban Council contemplate the erection of eighteen houses on the site of the old under the Housing of the Working Classes (Ireland) Acts. The houses will face on two streets, with the back dividing-walls of the yards abutting. The scheme is being carried out at cost of the Council. The architect is Mr. A. O'M. Lovell, M.R.I.A., Waterford.

Mr. Frank C. Baldwin, second vice-president of the American Institute of Architects, and who for the past eighteen years has practised his profession in Detroit, Mich., has moved to Washington, D.C. Mr. Baldwin will retire from active practice, and will devote considerable time to the administrative duties of his office in connection with the headquarters of the Institute at the Octagon.

A permanent church of St. Michael is about to be built at Golders Green, Hampstead, from plans by W. T. J. Lee, of Great James-street, Bedford-row. The style will be an adaptation of the Early English period to modern requirements. The church is to contain 750 sittings, and will consist of nave and aisle; a chancel 35ft. long and 40ft. high, and western porches (with a baptistry in the centre) the whole width of the church; a chapel, choir, vestry, and clergy-vestry, an ambulatory round three sides of the chancel, with an organ-chamber and space for supplementary choir above. The estimated outlay is £5,500.

CURRENTE CALAMO.

The warning of the Council of the R.I.B.A. with regard to Town Planning and Garden Suburb Schemes, which will be found elsewhere under the head of "Competitions," is timely and needful. Certainly the connection of architects with projects of this kind should be confined to the design of the buildings, and should not extend to the erection thereof. And as certainly architects should not lend themselves to facilitate such departures from legitimate practice by acting as assessors in competitions, unless the architect's participation is confined to the design only. We need not recall some recent instances to emphasise the wisdom of the R.I.B.A. The experience, probably, of those who have been led to lend themselves to the purposes of the projectors will have sufficiently convinced them of its wholesome and needed exercise.

The *Halifax Guardian* devotes considerable space to Professor Adshead's report on the designs submitted in the local town-planning competition, the result of which we gave last week on p. 126, and to a report of the proceedings at a meeting in the mayor's parlour, at which the Right Hon. J. H. Whitley, M.P., the promoter of the competition, was present. The public spirit exhibited by Mr. Whitley will, we trust, incite other wealthy men to promote similar competitions in their own towns and districts, and thus encourage architects to take their proper share of the work to be done under the Act. It is quite true, as the mayor of Halifax said at the meeting, that without the co-operation of landowners and architects, the best will seldom, if ever, be got out of any scheme to improve or beautify a town. Mere road-planning is, after all, a small part of the problem. In every scheme the local, social, and industrial conditions will differ, and only the local architect, and he only, if he has brains and industry enough to study those conditions, and avail himself of the facilities the Act offers, can really make the best of it.

We hope architects everywhere grasp this, and that they will respond heartily and intelligently to encouragement like that offered by Mr. Whitley. Then town-planning will not get into the hands of some of the freaks, as some of the "garden-city" making has. In his report on the eight designs submitted at Halifax, Professor Adshead points out that the application of the Act, providing as it does dispensations in the by-laws, offers opportunities for the construction of cheap residential approach roads, and for paths and secondary roads of exceptional types, which if adopted would open up sites at present quite inaccessible under the ordinary by-laws. This is one of the most important points in connection with the adoption of a town-planning scheme with reference to Halifax. Unfortunately, says Professor Adshead, none of the competitors who have submitted designs appear to have fully availed themselves of the possibilities of the Act in this connection. We, of course, have not seen the designs, and so cannot say how far that and his other criticisms are justified. Whatever the individual defects of the plans may be, we have no doubt, as Mr. Whitley said, there is not one of them that does not contribute one or more good points. That is something gained in a friendly preliminary competition of this sort.

St. Botolph's, Aldersgate, is evidently doomed, and the daily papers, according to the galleries they play to, are either moralising about the beauty of the holiness that is to be transferred from a forsaken church to some brand-new suburban district where not quite all the people go to the picture palaces on Sunday evenings, and piteous pleas for the historical interest of these relics of old times, so dear to the spiritually-minded citizens, however few in number, who have the luck, as we had for thirty years, to live in the healthiest and best-kept part of London. There is something so sacred in the veneration of Englishmen for the mere structures of places of worship that one can only wonder why it survives their demolition and the use of the sites for more or less respectable temples of Mammon, and yet recoils with horror from their transference to other good uses. But for that, St. Botolph's, which is quite a type of the comfortable and homely building the easy-going 18th-century Churchman liked his church to be, might stand where it is for many a year to come.

The Road Board, which has done little yet but accumulate the money derived from the petrol tax, is at last moving with regard to the construction of a road from Windsor to London. The idea is that a new or widened road from Cromwell-road to Hounslow and Windsor by Hammersmith and Brentford should be made. The Road Board has convened for February 14 a conference of all the local authorities through whose areas the suggested new road will pass to discuss the matter. The exact funds at the disposal of the Road Board are unknown; but the motor 'buses alone yield £50,000 a year through the petrol tax. The local authorities will, as usual, be expected to defray part of the cost of this big scheme, which must cost some millions. Certainly Brentford-street has long been a dangerous and utterly inadequate main thoroughfare.

Mr. Robert Applegarth, who will be remembered as one of the earlier secretaries of the Amalgamated Society of Carpenters and Joiners, celebrated his 78th birthday on Friday in last week. Mr. Applegarth, who was a native of Hull, was secretary of the Amalgamated Society at the time of the strike during the building of the Strand Law Courts, and during the inquiry as to the trade union outbreaks at Sheffield. In the latter case, before the inquiry was held, he was consulted by the then Home Secretary, and stipulated that there must be a guarantee of indemnity before they could expect to get at the truth. That was conceded after a time, and the chief conspirator, Broadhead, confessed what had been done. Mr. Applegarth's recent good work on behalf of the better education of all craftsmen is well known to all readers.

Popular guide-books to architecture are, as a rule, not worth much. "Architecture," by Professor W. R. Lethaby, F.R.I.B.A., the last new volume of the "Home University Library" (London: Williams and Norgate, 14, Henrietta-street, W.C.; 1s.), is a welcome exception. The illustrations are not worth much—perhaps in such a generous shilling's worth of 256 pages, well printed and decently cloth-bound, it was impossible to do more—

but the matter is all right. Beginning with an excellent summary of the main facts of architecture and its origin, Professor Lethaby lucidly sketches the progress of the art from the earliest Egyptian examples down to the last brand-new modern Renaissance revival, and concludes with a level-headed review of the present position. Probably, of the three courses open to us which Professor Lethaby indicates, the main influence will be the second—"some turn in civilisation, quick or slow, which by a change of conditions will compel a change in the arts." Meanwhile, we suppose, the "treadmill of style-mongering" will continue to grind, and the "successive fashions of little party cries and their enthusiasms" will ravish the jaded imaginations of their votaries and delight the ignorant vulgar. Some hope is left, anyhow, in the chance that, amid the rant of the crowd and the feeble exhortations of the pedants, quiet plain-speaking and common sense will appeal, as Professor Lethaby does, to any man with a spark of intelligence and a gleam of good taste.

A useful portfolio of drawings of "Building Construction and Architectural Drawing," by John A. Reid, F.R.I.B.A., Teacher of Building Construction under the Glasgow School Board (London: Blackie and Son, Ltd., 50, Old Bailey, E.C.), will be found of considerable service to elementary students, and possibly to some young architects. There are eighteen plates, embracing nearly all structural details. Mr. Reid's drawings are excellent, and his brief accompanying notes models of conciseness and perspicuity. Here and there differences which are found in Scottish practice will be noted, but to no such extent as to confuse the student South of the Tweed. If Mr. Fra. H. Newbury, who contributes the preface, is right, and "every professor and every instructor charged with the duty of education in Scotland holds his post because of the work of his own right hand or the capacity of his own brains," then we fear the "predominant partner" is still as much behind the Northern kingdom in matters of technical training as she is as regards general education. We have not quite got rid of all the "Theoricians" of the mid-Victorian age here, and few of them, we fear, could write and draw with the verve and accuracy which Mr. Reid manifests.

From our own experience of the many drawings that reach us, we should say that lettering receives less attention at the hands of architects and architects' assistants nowadays than it did fifty years ago; and, moreover, that ability to design a good letter is often thrown away, because of the lack of sense to use it in the right place. Much more of the same sort might be said when we contemplate the carelessness of writers and decorators who fail to fill their spaces accurately, and then dodge in "little curly bits" to make up lines and corners. Again, the mere copyist is seldom a good letter-writer. There is as much room for individual character in lettering as in any other branch of art, but none for the eccentric, bizarre, and often illegible products of the writer whose "quaintness" runs riot at the expense of real originality. A useful little shilling booklet, "Distinctive Lettering and Designs," by A. J. Hewett, is just published by The Trade Papers Publishing Co., Ltd., 365, Birkbeck Bank Chambers, W.C., which we

commend to all interested. The examples given are good, and the suggestions helpful.

The representative bodies of the medical profession have very wisely determined to have nothing to do with the "Conference" to-day, to which they were invited, on the working of the new taxes which are called "The Insurance Act." We suggest to all readers concerned that, unless it is going to be a packed meeting, proper opportunity will present itself for protest at Mr. George's coming exposition at the London Opera House. The Act imposes a heavy and direct tax upon the workers of the country, and of the industries to which they look for employment, and also lays a large and increasing burden on the general body of taxpayers. The scheme of the Act, as it stands at present, does not make the best use of the funds taken from the pockets of the people. The Act lays the same burden on the man earning £1 a week and the man earning £3 a week. It inflicts a heavy penalty on the man who, through no fault of his own, is thrown out of employment. Benefits are provided for the prosperous and for large classes of the workers which are not of the kind they most require. On the other hand, those who suffer most from ill-health and unemployment, and who cannot get into a friendly society, are, in fact, not insured at all, but are merely made to keep a compulsory Savings Bank account. In every household friction will follow, and upset the relations between employers and servants, neither of whom are going to get any real benefit. The Act, moreover, in its present form, gives autocratic powers to Government officials which are entirely inconsistent with British liberty, and deprives private citizens of the right secured through centuries of effort to a fair trial by judge and jury, independent of Government pressure. The Act requires thorough reconsideration and remodelling before it is allowed to come into operation.

During 1911, the city of Victoria, B.C., nearly finished the building total established for 1910. The figures being respectively 4,018,415dols. and 2,273,045dols. The 1909 total was 1,673,420dols.

The London County Council approved on Tuesday drawings of buildings proposed to be erected at the corner of Kingsway and Kemble-street, on the site leased in November last to King and Arnell, Ltd. The elevation will be in Portland stone and Forest of Dean stone.

The Wiltshire Archaeological Society are about to raise and re-erect the massive sarsen stone, one of the two still remaining of Longstone Cove between Avebury and Beckhampton, which fell on the 2nd ult. The stone which weighs about thirty tons, had only 3ft. of the smaller end buried in the ground. The re-erection of the stone, and the securing of its base in a bed of concrete will cost, it is estimated, some £40 or £50.

Chicago will be the Mecca of the American Clay-working interests in March, when the National Brick Manufacturers' Association, the American Ceramic Society, the National Facing Brick Manufacturers' Association, the Building Brick Association of America, the Association of Manufacturers of Clay-Working Machinery, the Western Drain Tile Bureau, the Illinois Clay Manufacturers' Association, and the Wisconsin Clay Manufacturers Association will hold their conventions.

The improvements committee of the Dublin City Council recommends that body to take steps to make an improvement for the clearance of the insanitary area bounded by Church-street, Sturup-lane, Beresford-street, Mary's-lane and the erection thereon of workmen's dwellings under Part I. of the Housing of the Working Classes Act, 1890, and the Housing of the Working Classes (Ireland) Act, 1908. After a most exhaustive examination of the site, a sub-committee found that the conditions of human life in all the courts and passages comprised in the area were most deplorable.

Building Intelligence.

BRISTOL.—The alteration and enlargement of the Fine Arts Academy is being undertaken. The plans and designs were the last work of the late Mr. H. Dare Bryan, F.R.I.B.A., of Bristol. The first idea was for a scheme costing about £10,000; but the proposals have been revised, and are now estimated to involve an outlay of £15,000. The committee are retaining intact the whole of the decorative work in front of the building according to Mr. Dare Bryan's design, and also an additional gallery. Mr. S. S. Reay, F.R.I.B.A., of Bath, completed and is carrying out the work designed by Mr. Bryan with modifications and improvements. These include the provision of an important ground-floor entrance. A grand staircase will lead from this to a reception-hall. It will be situated behind the present arcade facing Queen's-road, the five existing open arches of which will be entirely glazed. The outside portion of the building over the new entrance will be utilised so as to form a roof garden. On the staircase, immediately facing the visitor on entering, there will be a niche for a marble pedestal, with a life-size bust of Lord Winterstoke by Mr. Havard, the sculptor. In the marble reception-hall will be four decorative paintings in many lunettes.

EAST DEREHAM. The new secondary school for girls, which has been built by the Education Committee of the Norfolk County Council, was opened on the 24th inst. The building contains two corridors, that on the ground floor being 100ft. by 9ft., and on the upper floor 56ft. by 12ft. There is also an assembly-room, laboratory, and cooking-rooms, dark and other rooms, while the classrooms are each about 22ft. square and 13ft. high. There are cycle-houses, drying- and cloakrooms, and all necessary offices. The architect is Mr. H. J. Green, of Norwich. Mr. Cracknell was the builder, Mr. J. H. Mickleburgh the clerk of works.

FOREST HILL, S.E.—The new library and lecture-hall which have been added to Horman's Museum, Forest Hill, at a cost borne by Mr. Elmslie J. Horman, was opened on Saturday by Sir Archibald Geikie, President of the Royal Society. The building, which has been designed by Mr. C. Harrison Townsend, F.R.I.B.A., to harmonise with the Museum, which was also built from his plans, has two principal floors, and, over the main entrance, a small mezzanine. On the ground floor is the lecture hall, seated for 210 persons, and the library reading-room has seating for 24 readers. The book-store is provided with accommodation for 7,500 volumes, and for folios, maps, etc.

GLASGOW.—The city improvements committee of the Glasgow Corporation have approved the adoption of plans prepared by the city engineer for the reconstruction of the Tronquare area which was recently destroyed by fire. On the north side between Tontine-lane and High-street it is proposed to construct two blocks of buildings, of which the front one will have a floor area of 22,000sq.ft., with shop floor and basement facing the Tronquare, and five upper stories. The back block, between Tontine-lane and several courts will have a floor area of 21,000sq.ft. on the ground floor and four upper stories. The buildings are to be built as warehouses, and are so designed as either to serve one occupant or to be divisible into flats. The estimated cost of the new buildings is £25,150, and they will cover an area of 1,500 square yards. The city engineer has been instructed to prepare working drawings, and tenders are to be invited.

QUEENSTOWN.—The modern cathedral church of St. Columba, which occupies a commanding site 150ft. above the level of Queenstown Harbour, is about to be completed by the raising of its tower to the height originally intended, and its crowning with a spire rising 125ft. from the tower cornice, or 300ft. from the ground. The materials for the dressings and spire will be in chiselled limestone, to match the stone in the cathedral, the facing

of the tower being pitch-faced granite from the Newry quarries. The floors of the tower will be of fireproof construction, having a 12in. thickness of concrete, with rolled steel joists covered with asphalt. The architects for the tower and spire are Messrs. Ashlin and Coleman, of Dawson-street, Dublin, and the contract has been taken by Mr. John Maguire, Mulgrave-road, Cork.

Correspondence.

THE POLICY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—Personally, I do not care twopenny whether the Institute and the Society amalgamate, and I am not by any means an admirer of the draft Registration Bill on which the scheme was based.

But, really, the present critics of the scheme are "born out of due time"! The Council of the R.I.B.A., empowered by its members, arrived at a reasonable plan for joining the two societies. A legal hitch occurs. The Council overcomes that by some modifications. The modified proposal is submitted to a business meeting. That meeting—quite within its right—refers the modified proposal back to the Council for further consideration. But some of the people who spoke to that amendment, with more or less good taste and gentlemanly feeling, evidently want to upset the whole apple-cart. Nothing could be more ridiculous.

I am rather inclined to hope the R.I.B.A. Council will publish a verbatim report of the meeting on January 8. Your readers who were not present will then judge for themselves whether some of the speeches were the conscientious utterances of loyal members, quite legitimately anxious that the proper thing should be done in the best possible way, or whether they were merely the advertisements of little Absaloms wrapped up in admiration of their own importance and the wisdom of the policy set forth in 2 Sam. xv. 4.—Yours, etc.,

ONE WHO TRUSTS THE COUNCIL.

SIR,—With reference to your editorial note at the foot of Mr. S. Perks's letter on the policy of the R.I.B.A. in your issue of Jan. 19, might I point out that, in the opinion of at least one of your readers, it is not by any means fair to pass strictures upon the remarks of any speaker without affording the readers of your criticism an opportunity to gather the tenor of the remarks themselves?

Of course, the report of the meeting on January 8 will be published in the R.I.B.A. Journal in due course, and will be available for members of the Institute; but there must be a number of your readers who, not being Associates or Fellows, may remain ignorant as to what Mr. Perks did or did not say, thereby, in the light of your criticism on such remarks, placing him under a disability.

I hold no brief for Mr. Perks, and, indeed, from what I saw on January 8, he is quite competent to look after himself. My only reason for writing to protest against this action on your part lies in my detestation of anything approaching injustice. There are two sides to every question. You may not, in your editorial capacity, be in sympathy with the opposition so overwhelmingly evidenced at the meeting; but I trust this will not prevent your admitting the possibility that those responsible for it had ideals as

Mr. Gammell knows very well we are not allowed to publish reports of speeches made at business meetings. If any report is published by the Institute, we will take care it has the additional publicity of our own columns, if only that no opinion of ours shall prejudice that of readers generally as to the merits of expansion of the "high ideals" favoured by some of Mr. Gammell's friends.—Ed. "B.N."

high as those undoubtedly held by the framers of the proposals.—Yours faithfully,

K. GAMMELL, A.R.I.B.A.

17, St. Peter-street, Bedford, Jan. 29.

SOANE MEDALLION COMPETITION, 1912.

SIR,—I know nothing of any of the competitors, and only write as an onlooker, sharing your regrets as expressed in your leader of this week, when the designs for the R.I.B.A. prizes were reviewed. You say that it was a "good competition" for the Soane Medallion. I think you are right; but, all the same, it was a failure, seeing that no one has carried off the prize. Is this result the fault of the competitors or the Council? By "the Council," of course I mean those who set the Conditions in this case. The words are: "The building is to be of a monumental character, suitable for important civic functions of various kinds, and is to be in a public park, and situated 100ft. back from the road." When is a guildhall not a guildhall? When it is put in a public park. This question may be as silly as the answer is, and I put neither forward seriously, save in so far as both serve to express the confusion involved in the instructions, which are quoted above. A "guildhall" is nowadays a misnomer, and can only be applicable as at Westminster or Norwich and Cambridge, where the county council or borough council have taken over premises hitherto so named. Strictly speaking, a "guildhall" is the hall of a corporation or guild dealing with some craft or historic company. The Guildhall in the City of London enjoys an ancient conception as the assembly-place of the all and several old guilds once famous in the Metropolis of our forefathers and freemen of the City. I need not labour the point; but obviously a county-council or city hall is not a "guildhall," and, besides, the Conditions—which I say are at fault—gave accommodation requirements indicative rather of an assembly hall or concert pavilion attached to festivity rooms, not for offices for municipal purposes, as in a "guildhall," pace "council buildings." The problem thus put was essentially misleading and contradictory. What were the competitors to do? The public park site suggested a design indicative of its environment, with sweeping approaches and big open spaces. Thus the abounding pretentiousness of some of the schemes submitted, and which, in consequence, ill accorded with the essential requirements of a "guildhall" for civic functions, as usually understood, with a hall being led up to by reception-rooms, and the whole capable of being used, as a whole, like any City company's hall would be. Necessarily, such premises are generally situated in the more central parts of a town, and at most on island sites, "midst other buildings." It is not surprising, therefore, that the competitors found themselves in a fix, not knowing quite what to do. The park site "100ft. back from the road" encouraged grandiose ideas out of the harmony with the project. The fault is due to want of care and a little forethought in drawing up the Conditions, which in future must not be left so slack and vague.—I am, etc.,

OS A RONGER.

The rural district council of Maidstone have raised the salary of their surveyor, Mr. Busbridge, from £300 to £375 a year.

An influential committee has been formed among the Mohammedans in London to raise a large sum for the building of a suitable place of worship for members of the community. A site in South Belgrave has been purchased, and on this a mosque, library, reading, and lecture-hall will be erected, the contemplated outlay being about £100,000.

It is officially stated in Calcutta that until the most highly qualified European architect and sanitary engineer obtainable had to be selected by Lord Crewe, have visited Delhi before and during the rains, the Government will select no site for the new capital, but will merely acquire land. A committee will subsequently sit to supervise the plans that have been agreed upon.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

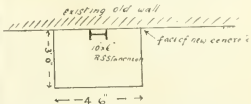
We award the guinea to Mr. Fred Wetherfield, 7, Thirlmere-road, Streatham, S.W.

QUESTIONS.

[13080].—CHIMNEY-BREAST.—A 9in. brick wall and chimney-breasts, as sketch, has to be carried over a passage. It is proposed to carry the wall between the chimney-stacks on reinforced concrete

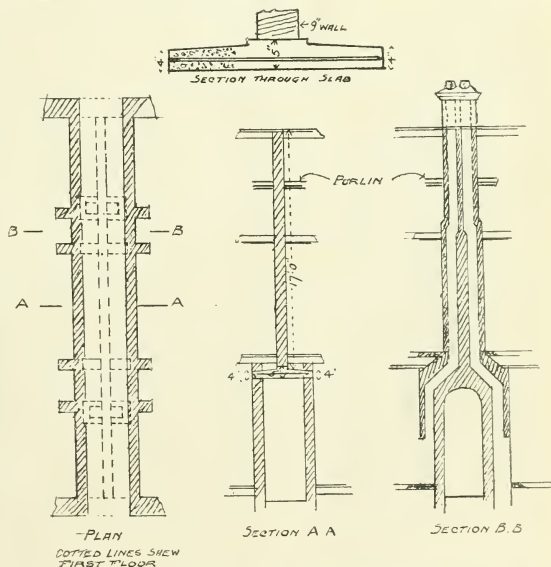
What would your practical readers advise me to do? Forching has been recommended; but my client does not wish to go to the expense of that if it can be avoided. My own opinion is, as time goes on this roof should get more watertight, as these tiles will harden and vegetate, and there has been no complaint about the rain getting in. Should he to know if any of your readers agree with my theory. Of course, one knows this roof should have been boarded and felted before the tiles and battens were fixed; but, to save expense, these were omitted.—Inquirer.

[13081].—CEMENT-CONCRETE BASE FOR R.S. STATIONING IN WRONG POSITION.—16in. by 6in. R.S. stationing, 13ft. 6in. high, carrying glider-plate with 40 tons load, must stand over extreme



edge of cement-concrete foundation already laid on good bottom. This foundation should have been carried 1ft. further under the existing old wall, but time and circumstances do not allow. What modification of usual R.S. grillage, or of base of the R.S. stationing, is required in order to guard against cracking of the edge of the concrete (3-1) foundation?—A. E. C.

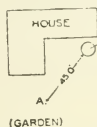
[13083].—RAISING WATER.—Will you be good enough to tell me if it is possible to raise the water



slabs, as sketch, the chimney-stacks being arched over by a semicircular arch across passage, without any reinforced slabs. The slabs to be 3ft. 9in. by 2ft. 6in., composed of three of clean gravel to one of cement (there is sufficient fine stuff in the gravel for binding purposes), each slab reinforced with No. 2 3in. angle-irons and wire-netting (a) Are the slabs strong enough to take the brick wall and as much of roof as the purlins bring on it (say 3cwt. on each slab)? (b) Can a better way be suggested, either with regard to carrying the wall or chimney-stacks?—R.

[13084].—TILED ROOF.—I have recently erected a house covered with a tiled roof. The pitch is 29deg., and the tiles are thick hand-made sand-faced tiles, laid to 4in. gauge, but not boarded nor felted underneath. The eaves are shaped to a "bell-cast" form, and project over the walls about 5in., and the six lowest courses of tiles are bedded in cement. After a heavy snowstorm which occurred a few days ago the roof was found to be leaking very badly (and at the eaves) where exposed to the full force of the gale, and the question is,

by a cheap method from the "w-e-l-l" so as to form a waterfall and stream at A, and to run down the garden? The ground is level from the "w-e-l-l" to A. The top of the water-surface in the well below the level of the ground is about 5ft. When the



water gets above the cellar floor of the house, it finds a way into the cellar. I have thought the siphon principle may answer, and thus I shall get rid of the water from the cellar, and at the

same time make use of it for garden effect.—E. Vincent King.

REPLIES.

[13075.]—THE NEW COPYRIGHT LAW. The Copyright Act, 1911, comes into operation on July 1, 1912, of which earlier date may be made by the usual Order will be made, so that July 1st may be taken practically as the day for its beginning. The Act could be taken to amend and to consolidate the existing law. It should be noted that copyright under the Common Law is abolished. In future all claims to copyright must, therefore, be founded upon this statute, which is for the first time extended to architecture, amongst other things. The principle of the law is also altered, for there will no longer be any distinction to be considered between the work of an architect and the work of an artist. Copyright, legally speaking, will subsist in the work itself of a British subject, even though unpublished, and, when published, by virtue of the publication. The author of the work is the first owner of the copyright in it, as the actual creator, unless it is done on a commission, when at being. It is the person ordering or doing the work, or an employee, when it belongs to the employer. But the author can assign his original copyright in the work. Where a committee invites drawings or designs for a church, and several architects submit drawings, the copyright in each case will belong to the individual author. In the case put, of designs by A and B, where A's design is accepted by the committee, and the alterations embodied in B's design there would have to be some agreement between the committee and these two parties, and then there would be no question of infringement of copyright raised over the matter, owing to the fact that the copyright would be in A, as to one drawing or design, and in B as the other, and the alterations, as it became the author's. But this sort of thing could be provided for in the invitation issued by the committee and the acceptance of it, and these would be the only points on which a case could be stated, that the designs should be treated as commissions, and some fee paid for each, when the committee, as the real employer, would be entitled to the copyright in each design sent in, and so be able to use parts of them all in settling the final plan accepted.—Fred Wetherfield, 7, Thurlmere-road, Stoke Newington, N. 16.

[13078.]—THE NEW COPYRIGHT LAW.—Replying to "Z. H." the new Copyright Law Act is not in force. With reference to his second inquiry, I am afraid that "Z. H." is not correct in his assumptions. How are B and others—going to prove that A has cleaned and copied points from their plans and designs, as put in question? I am of opinion that no other method is available for redress of a complaint. The following, copied from an expert's opinion, should be of service to "Z. H."—Attention is drawn to the fact that the architect is not protecting architects' designs. We must confess to a with a strong sense of the wrong done to certain architects by the shameful "lifting" of their designs, and to the consequent loss of the right of adoption of copyright. The difference between good architecture and bad is a question of—what? It is the manner of placing of features, the arrangement of orders, the diagonal lines of composition, the contrasts of solids and voids, the placing of ornament, the leaving out of all known features of style, and the placing of height or width or strength. Good architecture depends on fine outline and mass, on beautiful proportion of parts, on a certain quality of emphasis, on a distinction of treatment, and on a sense of order and rhythm. The choice or adoption of features, however uncommon or original. We cannot, of course, copyright the Orders. Why should we? We cannot copyright the distribution and arrangement? We cannot copyright doors or windows, or the kneezers of gables. Why copyright the way in which they are placed? Two of our fine buildings in London, the Grosvenor and the Langham Hotel, Whitehall—prevent nothing whatever we should wish to copyright. Any architect who is loosely treated by the authorities of architectural design knows that the border-line between what is good and what is bad, and that some of the finest results have been secured by very simple and traditional methods. The fact that appears to be that the copyrighting of architects' designs might lead to an insufferable tyranny, and to the stultification of the development of an architect's work. We have seen many instances in which architecture has gradually evolved something distinctly good which was built up so unconsciously from his own ideas of order and rhythm, and so on, so nearly in accord with something else that, under a Copyright Act, he would be unable to adopt it, and so considering what we owe, not only to old examples, but to the progress of the art, it is better to see where a fair and legitimate case for protection would come in. We have found the most able artists the most generous in their views in this matter, and most fearless of the consequences of plagiarism. The qualities of fine architecture are not in the design, but in the execution, and it is more than doubtful if copyright is of any use in the matter. I am, Sir, Yours faithfully, A. G. Tolson, 105, Tottenham Court Road, Tottenham, N. 16.

[13079.] THE NEW COPYRIGHT ACT. The new Act comes into force on July 1, 1912, and in the future the architect will not be able to claim any building or structure having an artistic character or design, in respect of such character or design or design mode for a building or structure, provided that the protection is not claimed for the work confined to the artistic character and design, and shall not extend to processes or methods of construction. Clause 17 of the Act provides that the copyright shall not constitute an infringement of copyright in

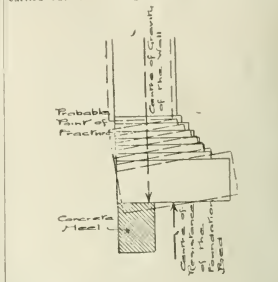
Where the author of an artistic work is not the owner of the copyright therein, the use by the author of any mould, cast, sketch, plan, model, or drawing, or any other work of art, in the production of a copy of the work, shall not be deemed to be an infringement of the copyright, provided that he does not thereby repeat or imitate the main design of that work. Clause 3 states that the copyright shall exist during the life of the author, and for a period of fifty years after his death. Civil Remedies.—Clause 6 (1): "Where copyright in any work has been infringed, the owner of the copyright shall, except as otherwise provided by this Act, be entitled to all such remedies by way of injunction or interdict, damages, accounts, and otherwise, as are or may be conferred by law for the infringement of a right." Part (1) of the clause deals with the costs, which are at the absolute discretion of the Court. Clause 9 of Part (1): "Where the construction of a building or other structure which infringes, or which, if completed, would infringe, the copyright in some other work, has been commenced, the owner of the copyright shall not be entitled to obtain an injunction or interdict to restrain the construction of such building or structure or to order its demolition." Clause 10 states that the action for infringement shall not be commenced after three years after the infringement. I would buy a copy of the Act from the Government printers, and study same, then see a solicitor, and take his advice. But would the case be worth as in all probability it would be a "test case"—K. H. Reed, Lecturer on Building Construction, Gloucester Technical Schools.

[13079.]—NOTICE.—The question of rebuilding boundary walls was answered very fully in the BUILDING NEWS dated July 15, 1910, No. 2897, pages 945. Building owner has no right whatever to any projection or overhang, or to any alteration of the footing mentioned in his agreement, and any alteration to three-course set-offs with concrete foundations, or further, any projecting eaves, gable copings, or any other projections, or alterations, or to low, and require written agreements. And this present "two-course easement" can only be claimed, providing the adjoining land was so used for many years, and the adjoining owner was in uninterrupted use. "Londoner" should discuss the whole question of rebuilding with his solicitor, including any other matters which may arise, as light, air, and so on, after which an interview could be arranged with the adjoining owner, plans exhibited and explained, and the matter settled amicably. Should there be any trouble, which is not probable, a notice of one month—should be given, and then, within reasonable time of the expiration of such notice, the wall can be taken down in its length, and replaced by a new wall in a day, or as to avoid any damage, etc., and subsequent claims for compensation, and also to avoid all unnecessary inconvenience to the adjoining owner, the new wall should be built on a piece of virgin land is leased, the lessee is only entitled to the use of the net surface area, and to exceed that area in any way which may be necessary for the purpose of the work, the land being under the same freehold, the municipal authorities allow reasonable projections for footings, area, height, etc.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13079.]—NOTICE.—In the first place, let me mention that the London Building Acts and Amendments do not contain any provisions for the removal of projections or overhangs for party-wall building, demolishing, etc., outside London is quite a matter between owner and owner, and is decided by agreement, and not by law. I have no doubt that there will be no special Act referring to party-walls. Several places, such as Bristol, have their special Act, and therefore in a district where there is no such Act, the borough or parish council have no powers, save the usual clauses in the Model By-laws as to thickness, height, etc. The foregoing statement is the result of a conversation with an A.M.I.C.E. of my acquaintance, and the point is no doubt a sound one. Under these circumstances I will not go into the question of the law, but will fully explain in two previous prize answers of mine, but suggest to "Londoner" that he should have drawn up a suitable agreement, and then, after consulting with the owners, and stating what sum the adjoining owner to "Londoner" agrees to pay for his portion of the wall only if he at any future date, when the wall is to be removed, should be called upon to pay until he wishes to build. By putting it to him in that light, he will see the reasonableness of the proposition, and will no doubt be glad to make some arrangement.—Leonard F. Smith, Westhall, Clarendon-road, Redhill.

[13079.]—NOTICE.—This question is a universal one, and I have always endeavoured to come to the aid of the owner of the property, and to the owner of the land, depending upon the strict interpretation of local law on the subject, which, however, does not seem to be the case in the present instance. In the first case it must be clearly understood that the boundary of a certain piece of land must, in all cases, contain all buildings thereon. This, I think, is a principle which is not only just, but it cannot seem to understand that the building comprises all overhanging eaves and projecting structures, and that the building, if it is to be a building, must be enclosed within the curtilage of the site. In this case, assuming that the bin wall belongs entirely to the person building, he has a right to project it, and to connect his new four-foot footings up to the full extent of the existing, but certainly he must encroach no further, nor can he keep his wall flush with the present line, and then, in the second case, but to keep the same in a similar position to the present, unless, of course, there is an unusual clause in the conveyance of the land to the effect that the building shall be built on a certain site, as an alternative to giving the adjoining

owner simply a formal notice of intending building and demolition of the existing wall, that a meeting be arranged, and that a proposal be made, that the new wall should be agreed to be built on the party wall to stand as a party-wall, and even if he, the adjoining owner, cannot be induced to pay a proportion of the expense of the wall, a great deal of trouble would be saved, and the boundary of the properties, thus giving a considerable increase in floor-space, and allowing the proper effects and proper foundations to be made. Again, if the original idea be carried out of building the wall entirely self-



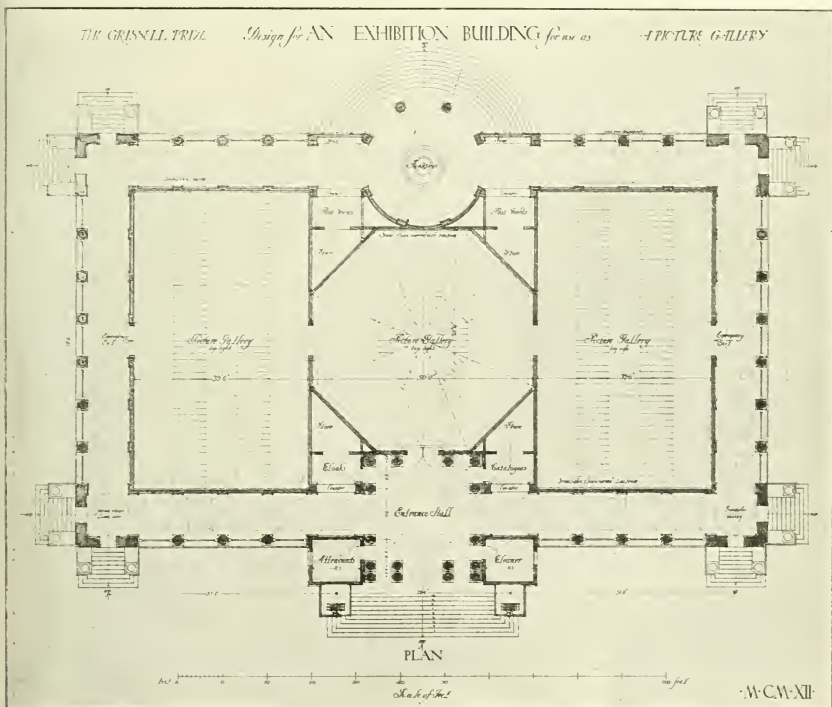
Our Illustrations.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN FOR AN ISOLATED EXHIBITION BUILDING FOR PICTURE GALLERIES.

In this design, the area stated in the Conditions, about 130ft. by 50ft., has been laid out so as to give the maximum wall-space for pictures. The galleries are surrounded by an open loggia, forming a lower order; the entrance pavilion is placed on one of

sectional detail of the cross section of the Colonnaded Verandahs, and on this same drawing is a stress diagram and detail of the roof trusses. The methods adopted for the construction are thus clearly shown. The plan and general elevation accompanying these notes illustrate the scheme as a whole. Of that we spoke with commendation in our leading article in last week's BUILDING NEWS, when we reviewed the exhibition of students' work now on view in the Galleries of the R.I.B.A., 9, Conduit street. W. Mr. Thomas Bradcock, of Merton road, Wimbledon, the author of this design, was awarded the Grissell Gold Medal and ten guineas, as we have previously stated with approval.

we have incorporated by way of description of the subjects here represented. Beverley Minster is a building, of course, of the greatest merit, the details of which, as contrasted with many of our cathedrals, are, perhaps, comparatively less known by many for various reasons, than the work unquestionably deserves. The transepts and eastern part of Beverley Minster were built between 1225 and 1245. This church always must rank as one of the finest pieces of Early English architecture in this country, both as regards proportion and purity of detail. Welby Pugin said of the eastern transepts that he had not lived in vain when he had seen their beauty. The treatment of the



ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN, 1912.

By Mr. THOMAS BRADDOCK.

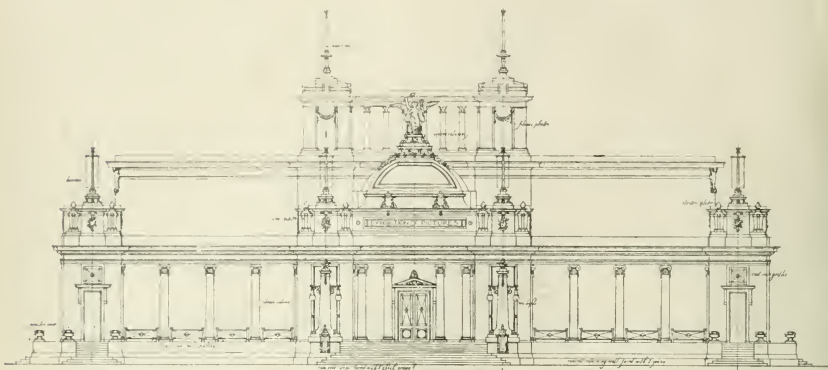
the long sides, balanced at the back with a circular-domed pavilion, both placed axially with the loggias, to give uninterrupted vistas the whole length of the building. The walls of the galleries are carried up to form an attic and to mask the corrugated iron roofs; on each side small pavilions, which terminate in colonnades, and so placed as to group with the domes in the front and rear of the building. The method of construction adopted is that of a light steel framing filled in with concrete slabs 4 in. thick, and plastered both sides; the columns, cornices, and decorative work being in fibrous plaster, and screwed to the concrete blocks or wired to steel framing. We give a double-page reproduction of the detail of the Entrance Pavilion, and a single-page

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE PUGIN TRAVELING STUDENTSHIP PRIZE DRAWINGS, 1912. BY MR. JAMES MACGREGOR.

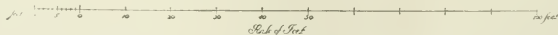
This double-page plate is reproduced from the sheet No. 1 of the four drawings submitted by Mr. James Macgregor, of Dunfermline, Fife, and for which this Studentship of £40 was awarded him, as mentioned in our review of the Students' Prize Competitions printed in the BUILDING NEWS last week. We shall give some more of his excellent examples of measured work and architectural draughtsmanship, of which we have already spoken with warm approval. Mr. Macgregor has sent us some notes, which

triforium, with its double arcade, is particularly fine. The vaulting-shaft, though it stops short of the floor-line, is brought down to the spandrel of the main arcade, and aids in giving the building that effect of great height which is one of its most pronounced characteristics, as contrasted with many of our cathedrals in England, which are wanting in respect to height. The exterior parapets were added when the nave was built, between 1320-1349. The roofs are modern. The doorway illustrated on the right-hand lower corner of the plate belongs also to this same south transept. It is a very successful piece of design, of excellent detail. The mouldings are most refined. The dog-tooth enrichments are exceptionally small, and, all being undercut, are to be

THE GRISSELL PRIZE Design for AN EXHIBITION BUILDING for use as A PICTURE GALLERY



FRONT ELEVATION



MCMXII

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE GRISSELL GOLD MEDAL PRIZE DESIGN, 1912.

By Mr. THOMAS BRADDOCK.

described as a marvel of ingenuity. The tower of Bishop's Lydiard Church, situate about five miles north-west of Taunton, is one of the series generally accounted most typical of many of the best towers found in the county of Somerset. The upper windows are filled with perforated tracery, instead of the usual sloping louvre-boards. The tower windows of the churches of Isle Abbots and Huish Episcopi are also filled in this manner. Much of the successful treatment of these beautiful West-country towers is due to the care and attention which their designers paid to their fenestration, as well as to the dignified simplicity of their general contour, no matter how rich some of their belfry-stages and crowning features may be. The Cross, which stands in the same churchyard at Bishop's Lydiard, is one of the best examples of its kind in the West of England. On the eastern side is a small niche with the figure of a saint still *in situ*, but much defaced. Other churchyard crosses may be seen at Newark, Notts; Springton, Somerset; and at St. Mawgan-in-Pydar, Cornwall.

ROYAL INSTITUTE OF BRITISH ARCHITECTS. THE TITE PRIZE DESIGN: CENTRAL COURTYARD OF A ROYAL EXCHANGE.

Mr. Louis de Soissons, the winner of this prize, sends us the following particulars of his very capable scheme, of which we publish the principal elevational section, detail, with general plan, and the two plans of the courtyard proper, which constitutes the subject of his design. "The two dominant ideas which have influenced my design are simplicity and dignity. Simplicity, because a royal exchange is a place where affairs of national, and even international, importance are transacted, and in no way is it associated with the glare of amusement. It must have repose and dignity. To obtain this effect, it is essential that the design should assume a monumental scale. From the 'monu-

mental' is but too easy a step to the error of the 'gigantic.' The medium exists in the 'grand manner' of tradition, and it is this spirit of moderation I have endeavoured to render the work in so far as it is possible with the necessities of modern building. This medium is too often forgotten in contemporary work. Men, realising the incongruity of adapting the 'gigantic' to modern conditions, are too apt to fall to the level of the insignificant, and apparently forget the happy medium created by such masters as Inigo Jones, Wren, and even Vanbrugh in England, besides Delorme, Penault, and Mansard in France. It is this tradition in design which has given its direction to my study of the problem."

LOUIS DE SOISSONS.

* * In our description last week, on p. 143, of St. Luke's Church, Grimsby, by the accidental loss of a line of line, matter on its way from the galley to the page, the apparently idiotic statement was made that "the clerk of the works was Mr. L. Nicholson, Bart." The ninth, and missing line, would have made the finish read correctly, "The clerk of the works was Mr. L. E. Gover, and the architect Sir Charles Nicholson, Bart. (Messrs. Nicholson and Corlette)." We apologise to all concerned, and thank Mr. Gover for drawing our attention to the error.

At Billericay a Local Government Board inquiry has been held into an application of the rural district council to be permitted to borrow £1,375 for the purchase of land in the parish of Great Burstead, and the erection thereon of working-class dwellings.

The Meshborough Town Council have decided to adopt the Baths and Washhouses Act, and also have agreed that the buildings and all other charges in connection with the baths shall not exceed £4,500. A committee was requested to report to the council as to the price of suitable land for a site.

COMPETITIONS.

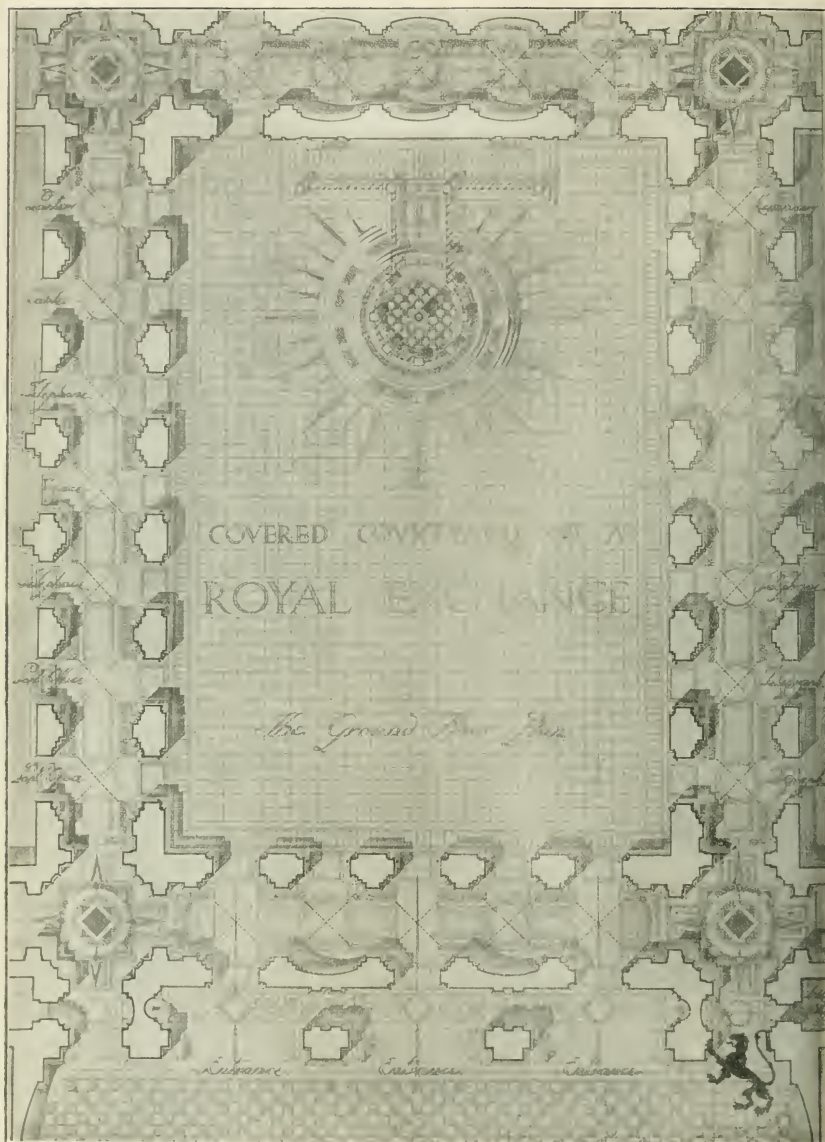
COMPETITIONS FOR TOWN PLANNING, GARDEN SUBURB SCHEMES. ETC.—Acting on the recommendation of the R.I.B.A. Competitions Committee, the Council of the Royal Institute give notice that in the case of competitions for town planning, garden suburb schemes, and kindred enterprises, the competition amongst architects should be confined to the design, and architects should not undertake the erection of the buildings they have designed for competition purposes. Further, the Council are of opinion that members of the Royal Institute should not act as assessors to, or otherwise countenance a competition unless it is limited to the design only.

SALFORD.—The plans of Messrs. Topham and Adshend and Mr. Thomas J. Bushell, both of Manchester, have been placed first and second respectively by the assessor, Mr. Paul Ogden, of that city, in connection with the competitive designs submitted to the Salford Board of Guardians for the reconstruction of the union offices.

To trace the ground plan of the Augustinian monastery which stood on the site, excavations are being made in the Church of St. Bartholomew the Great, West Smithfield. The belief of the authorities has so far been verified, and part of a Medieval wall has been disclosed in a tunnel driven beneath the Lady-chapel.

The cutting and wearing power of a stream of blown sand, long since utilised for various purposes, has been employed for testing building materials at the Gross Lichterfelde Institute in Germany. Granite, pine-wood, linoleum, and other substances used in the construction and furnishing of buildings are subjected for about two minutes to the action of a blast of fine quartz sand under a pressure of two atmospheres. The results show the resisting powers of the substances tested to the effects of wear. This form of test is applicable to road-building materials.

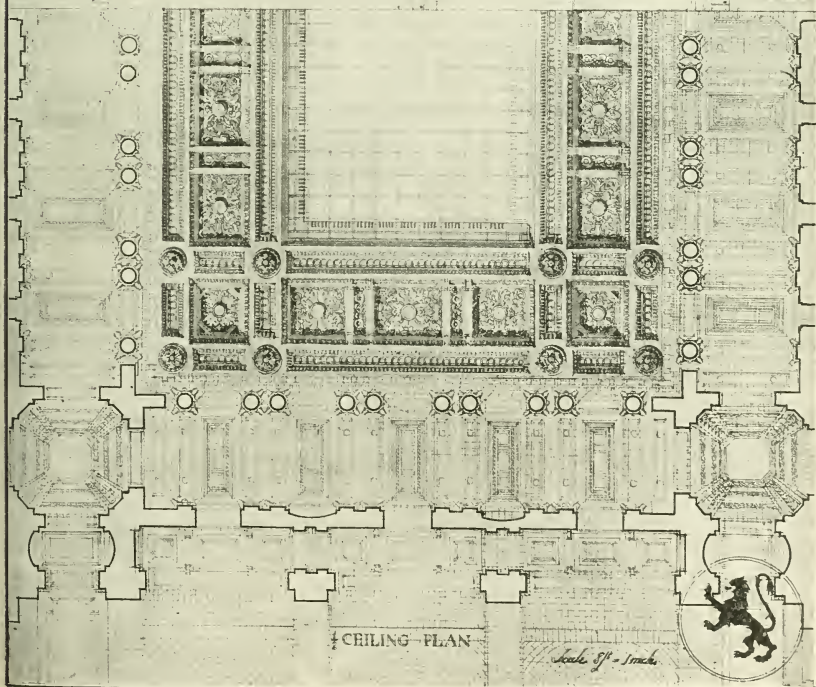




ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE TITE PRIZE AND TRAVELLING STUDENTSHIP PRIZE DESIGN.
By Mr. LOUIS DE SOISSONS.

THE COVERED COURTYARD OF A ROYAL EXCHANGE

ROOF PLAN



Reduced from the 1/4 inch scale drawing.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE TITE PRIZE DESIGN, 1912.
By Mr. LOUIS DE SOISSONS.

LEGAL INTELLIGENCE.

A GREAT MARLBOROUGH-STREET ARBITRATION.—An arbitration was held on Monday at the Surveyors' Institute by Mr. J. H. Oakley, arbitrator, in the case of land in Great Marlborough-street and Ramilies-street, which the Receiver of the Metropolitan Police Force has acquired under the Metropolitan Police Act, 1886, for the extension of Marlborough-street and Police-court and offices. The owners, Messrs. R. H. J. Elwes, were represented by Mr. Balfour Browne, K.C., and Mr. E. Macassey. Mr. G. A. Freeman, K.C., and Mr. W. J. Jeeves appeared for the Receiver of Police. Mr. Balfour Browne's case was that the estate valued at £3,500, the value of the land being worth £5,400. The site had an agreed area of 4,192 ft. 2 in. it was now let on a lease of 35 years from March, 1900, at a rental of £206, and the value of the lease they put down at £3,288, at a 15-year purchase. Cockspur-street, said that he knew no district where property was increasing so rapidly in value; in fact, there was a daily increase. Recent-street and Oxford-street firms were obliged to move to additional accommodation as they could near their shops, while soft goods "houses" were obliged to have their premises near to those great emporiums which were their principal customers. Mr. James Boydon, an estate agent, gave instances of property in the immediate neighbourhood having sold for as much as 46 s. 6d. per foot. On behalf of the Police Receiver, Mr. A. L. Ryde, of Ryde and Son, surveyors, said he would accept a 44 per foot valuation for a part of the frontage, and the whole for £3,502. The award will be published later.

BUILDER AND BUILDING OWNER'S DISPUTE.—On Tuesday, in a Divisional Court of King's Bench, before Mr. Justice Hamilton and Mr. Justice Lush, the case of Elms v. Hensted was argued by an arbitrator, Mr. Cecil Dennis for the plaintiff, and Mr. Bartley Dennis for the defendant. Mr. Cecil Walsh said he appeared for the plaintiff in this case, and he asked for an extension of time for an appeal to set aside the award of an arbitrator. The action arose out of a contract by the plaintiff to build a house for Mr. Elms at Kenbury, Berks. There was a dispute as to certain extras, and a claim was made by the plaintiff for £169. The plaintiff's claim was for the extra work, and the last day for award was made and the last day for moving to set aside the award was December 21. The award was contained in a letter dated July 18, and was in these terms: "No further sums due to Mr. Elms on the work. There is really a sum due to Mr. Hensted." He submitted that such an award was bad on the face of it. Apart from that point, the plaintiff had delivered accounts showing £169 due to him for work done under the contract, and the defendant, who appeared, had made a counter-claim, on which the arbitrator had made an award, and on which the plaintiff had never been heard at all. In defendant's counter-claim there was a sum of £177, of which the plaintiff admitted the plaintiff ought to have moved before, but there had been constant correspondence, and his client could not get a correct copy of contract nor yet the details of the award. He submitted in the end that the arbitrator was wrong. The judge was ordered, and also that there was a penalty clause if the work was not completed by a certain date. Mr. Bartley Dennis, for the defendant, opposed the motion for an extension of time, and said that the award was a sum of £169, and that the price of the house. Their lordships held that there was some merit in the application, and extended the time of appealing to set aside the award of the arbitrator for eight days.

MUSWELL HILL, HOU.—On Tuesday, a Curious story. On Tuesday, Jan. 30, a Divisional Court of the King's Bench Division, composed of Justices Hamilton and Lush, had before them the case of "Cable v. Lewis," which came before the Court in the form of a motion by Mr. Cable to set aside the judgment of Master Macdonnell. Mr. David White, appearing with Mr. Williams for Mr. Cable, stated that in this case Mr. Cable was claiming £38 19s. 1d., the price of some wrought-iron patent window casements, which he alleged were ordered by Mr. Lewis for the purpose of being used in buildings the defendant was erecting at Muswell Hill. The defendant, Mr. Lewis (said counsel) was an architect and surveyor, and he had in his employ a man named Curzon, who was a clerk. Mr. Cable's certain conversation passed between Mr. Curzon and Mr. Cable, and on account of these Mr. Cable called at the premises of Mr. Lewis's firm, and saw Mr. Lewis, and pointed out to him the advantage of these window casements. Mr. Lewis said he would

use them in these particular buildings, and subsequently Mr. Lewis in communications to Mr. Flowerdew, the builder, made reference to the casements. In the specifications (counsel continued), these particular casements were mentioned, and the builder was instructed to use them. Mr. Cable said that he did not want to say that the man Flowerdew was a "man of straw." A large amount of property was accumulating upon these works, and in February, 1906, upon the builder failing, Mr. Lewis, who was architect and owner of the premises, came and took the property, and his client (Mr. Cable) was unable to recover anything. He would submit that under the case of "Hobbs v. Turner"—which was on "all fours" with the present case—Mr. Cable was entitled to recover from Mr. Lewis. Replying to Mr. Justice Hamilton, counsel stated that he submitted the goods were delivered to Flowerdew after an order had been given by the defendant. The Master, it was true, had found that in fact Mr. Lewis did not give the order, and was not liable; but plaintiff appealed on the point of law. The order was given (he contended) by Mr. Lewis by word of mouth. Mr. Justice Hamilton: The Master believed Mr. Lewis. Counsel said that the Master's finding showed that he is wrong. Mr. Justice Hamilton said he noticed from the documents before him that the Master had said he found as a fact that the order for the casements was not given by the defendant. Mr. Justice Hamilton said that in his case the building owner, Mr. Lewis, was the architect, and clearly he had taken possession. He added that none of the people who had supplied goods for the seven houses had been paid a penny. Mr. Justice Hamilton: It is not clear whether Mr. Lewis did give the order or not was purely a question of fact.

Counsel said that he asked the Court to give Mr. Cable judgment or leave for a new trial. He mentioned that originally there was application for judgment under the Statute. It ought never to have been referred to the Master. Mr. J. R. Macdonnell (for the respondent) stated that the reference was by consent. Mr. White further argued this case, and handled the specifications from which he said their Lordships would see that the name of Mr. Cable appeared, and a reference to his patent casements. Concluding, he submitted that Mr. Lewis, as the builder, gave the order to himself, as architect, and as the owner of the premises. Mr. Cable. Mr. Justice Lush remarked that Master Macdonnell had found against Mr. Cable on the facts, and it seemed to him that the case that counsel had cited had nothing to do with it. Mr. White replied that Mr. Cable, he would ask for leave to appeal from their decision, as this was a most important matter so far as builders' merchants were concerned, with regard to the supplying of goods under similar circumstances. With this being so, he argued by Mr. Macdonnell, Mr. Justice Hamilton delivered judgment. His lordship remarked that the price of the goods was under £40, and an issue having been raised that appeared to be one of fact, was referred to Master Macdonnell, who, on hearing the evidence, decided in favour of the defendant. The plaintiff had moved to set the judgment aside, and for judgment to be entered for the plaintiff on the grounds (1) that the defendant had himself made out his case, and (2) that he was wrong in law in not holding that the order for the goods was given by the defendant as the real principal. Mr. White had argued that the plaintiff could recover against the defendant because there was somebody—a man named Flowerdew—who had pledged defendant's credit to the plaintiff, and established privity of contract between the parties. Counsel agreed with the evidence actually given before the Master, because although the plaintiff said he had had an order for the goods given direct by Mr. Lewis, the defendant had sworn that no such order had been given. The Master believed the defendant and not the plaintiff. The case that had been quoted for the appellant did not apply, and the conclusion that the Court had arrived at was that they could not interfere with the decision of the Master, and the case must therefore be dismissed, with costs. Mr. White raised the question of leave to appeal against this decision, and Mr. Justice Hamilton said: We do not give leave; you must take your own course.

SURVEYING CLAIM SETTLED.—In the Official Referee's Court, before Mr. M. Muir Mackenzie, last week, Mr. Herbert L. Tebb, counsel, intimated that the great Western Land Company, Ltd., a claim for fees—had been settled. Mr.

Tebbs asked the Referee, in whose warned list the case had figured, to direct that judgment be entered for plaintiffs for £515, and the costs to be taxed. The learned Official Referee acquiesced. It was understood that the claim had previously been referred to by the plaintiffs at Kilsythne Heights, near Greenford, Middlesex.

MALLOW ARBITRATION.—Mr. C. C. Hutchinson, who sat as sole arbitrator in the matter of the transference of the Mallow Gasworks to the local district council, has fixed his price to be paid by the latter at £250,000 cubic feet. The experts for the company, Messrs. F. Jones and H. Woodall, valued the undertaking at £10,824 and £10,603 respectively, while Mr. W. Newbigging, expert for the council, valued it at £4,667. Mr. Jones gave the structure value at £6,000, and Mr. Woodall at £6,498, while Mr. Newbigging valued the structure at £5,848.

CHARGES AGAINST AN ARCHITECT.—At Central Criminal Court on Wednesday, before Judge Lumley Smith, Cyril Frederick William Fryer, 44, architect, was indicted for obtaining credit for more than £20 without disclosing the fact that he was an undischarged bankrupt, and, further, for obtaining from Annie Margaret Emerson a motor-car, and from Margaret Amy Bartlett £46, with intent to defraud. Mr. Leicester—who, with Mr. R. D. Muir, represented the prosecutors, the Brompton Motor Company, Ltd., of Brompton-road, said that the prisoner was introduced to the company, in June last year. Eventually the prisoner obtained a Mercedes motor-car from the company on the representation that he had the Wellington House Hotel, Buckingham Gate. He proposed to pay for the car partly by cheque and partly by cash, and the share of shares in the hotel company. He said he was the architect of the hotel and held 6,000 shares. After the car was delivered the bill was not met, and judgment obtained against the accused was not satisfied. Then the prosecutors accused the man was undischarged bankrupt. The prisoner, on oath, said he was principal of the firm of Palgrave and Co., of Victoria-street, Westminster, and they or their nominees held from him at one time between 7,000 or 8,000 shares in the Wellington House Hotel company. The French bank agreed to take 25,000 shares of £200 each. He said he wanted the motor-car for his son, and agreed to pay £100 deposit for it, and the balance out of the second instalment under the French contract. It was untrue to suggest that he did not possess the money, which he had given as security for the bill. Replying to the Judge, the prisoner said he did not receive the second instalment from the French bank, and he was suing them for the money. In his view, the bill should not have been presented, as he only had one cheque. The hearing was adjourned.

A memorial to Principal Marshall Lang was unveiled in King's College Chapel, Aberdeen, on Friday. It consists of a bronze tablet, with a bust of the late principal in low relief, and an inscription. The sculptor is Mr. John Tweed.

The death took place at Wakefield on Friday of Mr. William Judge, New Wells House, an alderman in the Wakefield City Council, and also a prominent member of the Wakefield and District Trades Union Federation. He was sixty-six years of age.

At the Borough Polytechnic Institute, S.E., there was inaugurated a special school for technical education in the ironmongery and hardware trades. It is proposed to establish a course of instruction of two or three years, which will cover not only shop and general salesmanship, but also the installation of heating, ventilation, and electric systems, gas and electric lighting, as well as the general commercial education of students. Substantial financial support is already assured to the scheme, and the Ironmongers' Company and the London and Birmingham Companies are to be asked to give their support to the movement.

The sub-committee of the improvement committee of the Manchester Corporation met on Friday at the town-hall representatives of the estate-agents and surveyors of the city, and referred with them on the town-planning schemes of the Corporation. The town clerk (Mr. T. Hudson) and the city surveyor (Mr. T. de Courcy Meade) were present. Representatives of the Stockport Corporation also attended, and discussed proposals as to the best means of uniting the Manchester area with Stockport. The proceedings were of a preliminary order, not much being done beyond exchanging views or hearing suggestions.

WATER SUPPLY AND SANITARY MATTERS.

WATER SUPPLY IN RURAL DISTRICTS—

A conference on the question of the water supply of rural districts was held at the Guildhall, Cambridge, on Saturday afternoon, under the presidency of Sir George Fordham, chairman of the Cambs County Council. The Chairman said that, whilst most towns had settled the question of their water supply, it was only here and there that it had been done in rural districts. Probably before long rural districts would have to face, under legislative pressure, the problem of providing adequate water supplies, and he advised them to take advantage of the present moment when it could be done voluntarily. Professor Kenwood, medical officer for Bedfordshire, read a paper on "Village Water Supplies." He insisted that it should be the chief concern of the sanitary authority to provide and maintain a suitable water supply. Public health in its broad sense was sometimes at the lowest level in villages where the so-called vital statistics might seem by superficial thinkers to justify the crude and hasty deduction that all was well. It was comparatively seldom that village wells furnished water supply all the year round which would be considered suitable in quality and quantity for an urban community, and it was usually polluted by sewage impurities. The only way to deal with the problem, and its difficulty was almost entirely one of finding the necessary money in districts where that commodity was scarce. He suggested co-operation between villages and the storage of rain-water in storage reservoirs. The speaker, Mr. Wood, in the course of the discussion, said he looked forward to a time when, if they were not very careful, their sewage disposal would be so bad that a very great number of their water supplies would be impracticable. The need for a plan of providing water supplies in thinly-populated districts was urged by several of the speakers.

A new school of art has been built at Canterbury. Mr. W. J. Jennings, F.R.I.B.A., of that city, was the architect, and the outlay was £2,600.

The East Riding County Council decided on Monday to reconstruct Hull Bridge, which was alleged to be the most dangerous one in England. The Sir John Lubbock, Bt., Bt. Baron, and Partners were adopted, the estimated cost of reconstruction being £8,600.

The death is announced of Mr. John Martin, J.P., of Galloway House, Galloway Park, Belfast, one of the principals in the well-known firm of Messrs. H. and J. Martin, Ltd., builders and contractors, 101, Great Building Works, Ormeau Road, Belfast, and Leinster Works, Dublin. The deceased was associated with many of the improvements which changed the aspect of Belfast completely within the past twenty or thirty years. His family have been engaged in important local undertakings, including the construction of the new city hall.

The King Edward Statue Committee of the Aberdeen Town Council went over various sites suggested for the statue along with Mr. Alfred Drury, A.R.A., the sculptor of the accepted model for the statue, on Monday. It was decided to recommend to the subscribers that the statue be placed on the site now occupied by the Burns statue, and that the latter be placed in the corner of the ground at Union-terrace, not far from the Wallace statue. There will be a statue of King Edward, Prince of Wales, Prince Albert, King Edward, Burns, and Wallace.

The highways and works committee of the Southampton Corporation have appointed Mr. A. E. Jackson, chief engineering assistant, Manchester, to be borough engineer and surveyor of the city, at a salary of £600 a year, rising to a maximum of £800. The committee interviewed eleven candidates, who had been selected out of 123. The services of the present surveyor (Mr. P. Hirst) are to be retained, at a salary of £450 a year, the realisation of the completion of the sewerage scheme, when he will retire on a pension of £250 a year.

The yearly meeting of the members of the Royal Cambrian Academy was held on Saturday, at Plas Mawr, Conway. Mr. H. Clarence was re-elected president, thanked for his services, and Mr. C. H. Lewis, auditor, was elected on attaining that day his eight-fourth year. He suitably responded. Mr. Cuthbert C. Grundy was reappointed vice-president. Mr. F. W. Longshaw, hon. treasurer, Mr. W. J. Slater, secretary, and Mr. A. F. Perrin, auditor, with Mr. Owen Rowland, Messrs. J. Cassidy (sculptor), N. Prescott Davies, and Alfred W. Strutt were elected to full membership, and Messrs. A. A. Berrie, William Eglington, and Tom Mostyn were elected associates.

Our Office Table.

The London County Council, at their meeting on Tuesday, received a report from their Improvement Committee recommending that the freehold of the eastern horn of the crescent site between the Strand, Aldwych, and Melbourne-place be sold to the Commonwealth of Australia for £379,756. The committee stated that the land has a total area of about 24,236 square feet, and total frontages of about 633ft. to the Strand, Aldwych, and Melbourne-place. This area includes the site occupied by the offices of the Victorian Government, and leased to that Government at a ground-rent of £874 a year. The whole of the site, with the exception of the portion occupied by the Victorian Government, will be used for the erection of the Commonwealth buildings. The committee expressed confidence that the acceptance of the offer would facilitate the development of the remainder of the Council's valuable surplus land at Aldwych. If the Council agreed to the improvement proposal, the financial position of the whole improvement would, in the opinion of the committee, be considerably benefited. The Finance Committee reported that the sum offered for the site was approximately equivalent to the amount at which the property was valued for the purposes of the returns of surplus lands presented to the Treasury, and they concurred in the proposed sale. A long debate took place upon the general principle of retaining or disposing of the Council's freeholds, but eventually the improvement Committee's report was unanimously adopted.

At the same meeting of the Council the Building Acts Committee reported that they had under consideration the question of the steps to be taken with regard to the unoccupied premises Nos. 52 and 54, Queensland-road, Islington, which have been certified by the district surveyor to be dangerous. In these cases statutory notices were served on the owner to remove the danger, but no action has been taken by him; the structures were shored up by the Council's contractors, and summonses issued against the owner. At the hearing of the case at the North London Police Court, the magistrate dismissed the summons, with costs against the Council, on the grounds that, as there was a garden between the houses and the street, the only persons liable to injury would be trespassers, and that, as the structures had been shored, they were not dangerous to the public. In the meaning of Part IX of the London Building Act, 1894. The Committee were strongly of opinion that every effort should be made to reverse this decision, and had therefore asked the magistrate to state a case for the decision of the High Court. They recommended that the solicitor take steps to obtain the decision of the High Court in the matter of the dismissal by the magistrate of the summonses against the owner of the structures. The dangerous structures Nos. 52 and 54, Queensland-road, Islington. This recommendation was also adopted.

The Parliamentary Committee reported that the London County Council (Tramways and Improvements) Bill of last session as passed authorises the construction of new tramways as follows:—Additional double line and junctions on Dog Kennel-hill between Grove-hill-road and Constance-road. Double connecting line between the existing lines in London-road and authorised lines in Park-road via Devonshire-road and Waldram-road, Lewisham. Double line between Brockley-rise, Forest-hill, and Rushey-green, Catford via Stanstead-road, Catford hill and Catford-road. The Bill, as passed, also contains powers for the reconstruction for electrical traction of the tramways from Kingsland-road to Mare-street via Dalston-lane and Graham-road. Powers are also contained enabling the Council to acquire lands and to effect various street widenings in connection with the proposed new tramways and tramway reconstruction. The effort on the part of two authorities in London to force

sewers into rating assessment appears, by a report of the Local Government Committee, to have been abandoned. Faced with the prospect of an appeal to Quarter Sessions by the County Council, the Greenwich Union Assessment Committee has deleted from the lists all the entries relating to the Council's and the borough council's sewers, and the Woolwich Union Assessment Committee decided to delete the Council's sewers and not to insert therein the local sewers.

In commenting upon the transfer of the Capital of India to Delhi, *Indian Engineer* remarks that the public both in Great Britain and on the Continent, is at the present time obsessed with the idea of town-planning, and not without good reason. Our contemporary points out that undue haste in building the new capital at Delhi would result in an overcrowding that would be far more disastrous than in the healthier climates of western countries. The announced intention of utilising the temporary Durbar as a temporary installation of the new city is deprecated, especially as regards the roads. Our contemporary urges that competitive plans should be invited from architects, as is being done by the Australian Commonwealth in the mural case of Yase Canberra; but we trust that the mistakes that have been made in arranging the conditions for the latter competition will be avoided. As the seat of government, Delhi is destined to grow in time into the greatest and most imposing city in the East, and should not be planned and erected in haste by those who lay out the scheme, it will be a source of keen and unavailing regret for all time.

The Home Office memorandum on steam boilers prepared by Mr. W. Buchan, one of the Government factory inspectors, and published at Is. 3d., aims at acquainting owners and users with the dangers and troubles likely to arise in boilers and vessels using steam under pressure. Appended to it is a useful summary of the law relating to steam boilers. The official character of the memorandum should not give an impression upon those owners and users, especially in the agricultural districts who avoid the expert assistance of the boiler insurance companies on the ground that the latter are not unbiased advisers. Mr. Buchan gives a clear, succinct, and, having regard to limitations of his space, complete discussion of the leading boiler troubles. He offers a qualified acceptance of scale-softening compositions for use inside boilers, and shows the risks involved in the use of scale-softening compositions, into an overheated boiler, economisers, boiler mountings, bakers' ovens, and other steam vessels are dealt with in the memorandum, and there are self-explanatory drawings illustrating good and bad practice.

The principal undertaking this year of the Egypt Exploration Fund will be the excavation of Osireion, the great subterranean building at Abydos, connected with the Temple of Seti. The excavation of the Osireion has begun nine years ago under the supervision of Professor Petrie, but the work was discontinued, and it is now proposed to prosecute it to its conclusion. The building is a subterranean temple. Its stone walls are covered with sculpture and hieroglyphs dealing with the adventures of the soul in the underworld after death. So far as excavated the Osireion consists of a broad way descending to a great hall, from which opens a chamber and a second hall leading towards the temple.

Dr. Theodor Wiegand, the director of the Berlin collections of antiquities, has described before the Prussian Academy of Sciences the results of the recent German excavations at Miletus and on the site of the neighbouring Temple of Apollo at Branchidae. A building of Corinthian work, bearing a dedicatory inscription to Laodice, the wife of Antiochus II., has been brought to light in the south market. The clearing of the Serapeion has been completed, and the fragments of the entablature and pediment of the entrance hall of six columns can be pieced together.

VARNISHES, &c.

| | Per gallon. |
|--|-------------|
| Fine Pale Oak Varnish | £0 8 0 |
| Fine Pale Oak | 0 10 0 |
| Superfine Hard Elastic Oil | 0 10 0 |
| Superfine Hard-drying Oil, for seats of churches | 0 14 0 |
| Fine Elastic Carriage | 0 13 0 |
| Superfine Pale Hard-drying Oil | 0 16 0 |
| Fine Pale Maple | 0 16 0 |
| Fine Pale Fumblie Copal | 0 18 0 |
| Extra Pale French Oil | 1 10 0 |
| Espresso Flattening Varnish | 0 18 0 |
| White Copal Enamel | 1 4 0 |
| Extra Pale Paper | 0 10 0 |
| Best Black Japan | 0 16 0 |
| Best Black Japan | 0 16 0 |
| Black and Mahogany Stain | 0 8 0 |
| Brunswick Black | 0 8 0 |
| Berlin Black | 0 16 0 |
| Knocking | 0 10 0 |
| French and Brush Polish | 0 10 0 |

Situations and Partnerships.

The charge for advertisements for Situations "Vacant" or "Situations Wanted" and "Partnerships" is 2s. 6d. per line for the first week, and 1s. 6d. for every eighth week after. All Situations Advertisements must be prepaid.

Rates for Trade Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* * * Replies to advertisements can be received at the Office, Edinburgh House, 1, Arundel-street, Strand, W.C., free of charge. If to be forwarded under cover of advertiser an extra charge of 5s. 6d. is made. (See Notice at head of "Situations.")

RECEIVED.—F. and B.—C. L. Co.—F. B. and Co.—E. W.—W. H. S. and Son.—L. P. S.—A. B.—H. G. G.—R.—W. and G.—H. L.—C. S.—W. and W. G. B. and Co.—G. F. L. and Co.—W. T. A. Co., Ltd.—J. D. R. and Son—M. G. and Son.

T. L. A.—Thanks, no.

R. P. J.—You have very little choice.

H. P. H.—No satisfactory recommendation possible, we fear.

MEMPHIS.—We know nothing of the firm. They do not appear in our "Directory."

"BUILDING NEWS" DESIGNING CLUB.

FIFTEEN LIST OF MEMBERS.

E.—A Mountain Church in Wales, with a detached tower connected with the S.W. corner of the building by a short cloister corridor. The ground-floor space of the tower to be suitable, and available for those coming from a distance as a shelter or waiting-place, with wall benches. A double door leads to the west, divided into two, and with w.c.s. one for each sex. This waiting-room in tower to have doors and windows; also an open fireplace; but the whole thing to be suitably treated as a big porch, and so arranged to serve also as the main entrance to the church. The porch in tower to be placed on the east side of the church, and to be in the direction. The group will take the form of a letter "I" on plan. The church is to seat 200 persons, including choir, men and boys. The font is to be at the west end. A recess must provide for a small organ in the chancel next the vestry on the north side, and that a heating-chamber in the tower must be airy and square; the design generally to be plain and suited to stone construction, treated for an exposed situation, and in harmony with mountain surroundings. Stone-slatted roof. The site, close to a village, is on the east slope of a hill; but the fall of the site itself is but slight, and, being irregular, may be taken at will without specifying a precise fall. The building must grow out of the site, and not be stuck down on a flat level plot as in a valley. The view must be taken from the S.E. The ridge line of the church must be one and the same from end to end. The chancel may or may not be separated from the nave by an arch. The tower upper stage to accommodate a small spiral of bells and a ringing chamber, with a stair turret outside. A turret is to provide for a sanctus bell on the south elevation near the chancel, but must not rise the ridge of the roof, which ridge is to be unbroken by any feature. The style to be 13th century in spirit. Two elevations, plans, and sections, scale six to one, and a perspective view not large. Drawings, with compass on back, must reach the BUILDING NEWS Office on or by March 2.

DRAWINGS RECEIVED.—"County Yoke!" "Theos," "Black Diamond" (clock), "Bob Wallis," "Cheer Up," (do not set next time, see rules).

Captain G. J. W. Smyth, R.E., junior Government inspector of railways, Circle No. 7, Madras, is appointed Engineer-in-Chief, Lower Burma Railways, Reconnaissance Surveys, with the rank of superintendent of works.

Works of drainage and sewage-disposal, which have been started in the village of Ming-thort, near Loch Leven, by the county council of Kinross-shire, were inaugurated on Friday. The engineer for the scheme was Mr. T. O. Niven, of Glasgow.

Works of drainage are being carried out in the village of Betherston for the West Ashford Rural District Council. The estimated expenditure on the scheme, which is being carried out by November next, is £2,300, and the engineer is Mr. Martin.

TRADE NOTES.

The Wath Infirmary Hospital is being supplied with Shorland's patent Manchester stoves with descending smoke-flues, Manchester grates, and ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Under the direction of Messrs. Baker and Penfold, architects, Reigate, Surrey, the Boyle system of ventilation (natural), embracing Boyle's latest patent air-pump ventilator and air inlets, has been applied to Chaddon School, Surrey.

The new guildhall at Londonderry is approaching completion. It has been erected from designs by Mr. A. A. Robinson, architect, and the builders being Messrs. Laverty and Co., of Belfast.

A large concert hall is in course of erection in Douglas, Isle of Man, at Villa Marina Park, and which has recently been purchased by the corporation for the sum of £50,000, and extends in area over nine acres. The hall is to cost £20,000.

PILKINGTON & CO.

(ESTABLISHED 1838.)

DEPTFORD WHARF,
190 & 192, CREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark,

POLOCEAU ASPHALTE

Patent Asphalte and Felt Roofing

ACID-RESISTING ASPHALTE.

WHITE SILICA PAVING.

Seyssal Asphalte direct from the Mines.

TELEPHONE NOS.: NEW CROS 1102 (2 Lines).

FOR Oliver's Seasoned Hardwoods,

WM. OLIVER & SONS, Ltd.,
120, Bunhill Row, London, E.C.

TENDERS.

* * * Correspondents would in all cases oblige by giving the addresses of the parties tendering—any rate, and the accepted tender; it adds to the value of the information.

BATHURST, S.E.—For the remodelling of the water supply system, and the improvement of the drainage at the Cherry Garden street fire-station, for the London County Council:—

| | |
|--|---------|
| Comby, Ching, and Co., Long-acre, W.C. | £49 0 0 |
| Hayward Bros., and Eckstein, Ltd., S.E. | 350 0 0 |
| Bonaghy, S.E. | |
| Deane, E., and Beal, Ltd., Monument-street, E.C. | 331 8 0 |
| Cannon & Hefford, Pockham, S.E. | 310 0 0 |
| Cannon, W. G., and Sons, Ltd., Southwark, S.E. | 577 0 0 |

Architect's estimate, £230.
* * * Recommended for acceptance.

BILLSMOOR.—For the erection of a temporary wooden school building, for 20 children, at Billsmoor, for the Northumberland Education Committee:—

| | |
|--------------------------------|----------|
| Cowie, F. D., and Co., Glasgow | £130 0 0 |
|--------------------------------|----------|

Accepted.

CLIFFTONVILLE, MARGATE.—For alterations and additions to the Fort Pearson Hotel, Cliff-tonville, Margate, for the Fort Pearson Hotel, Ltd.:—

| | |
|--|------------|
| F. L. Lockwood, 24, Balham Hill-road, S.W., architect and surveyor | |
| Lockwood, A. G., and Co., West-gate-on-Sea | £1,298 0 0 |
| Anderson, Bros., Margate | 1,248 0 0 |
| Eaton, F., Wandsworth (accepted) | 1,235 0 0 |

(Continued on page X.V.I.)

Trade News.

WAGES MOVEMENTS.

HULL.—News of the Hull building trade have been handed in to the employers with a demand for an advance of wages and shorter hours. Masons and their labourers state that it is fifteen years since they last had an increase.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claims upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter be addressed to the EDITOR of the BUILDING NEWS, Edinburgh House, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risk, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

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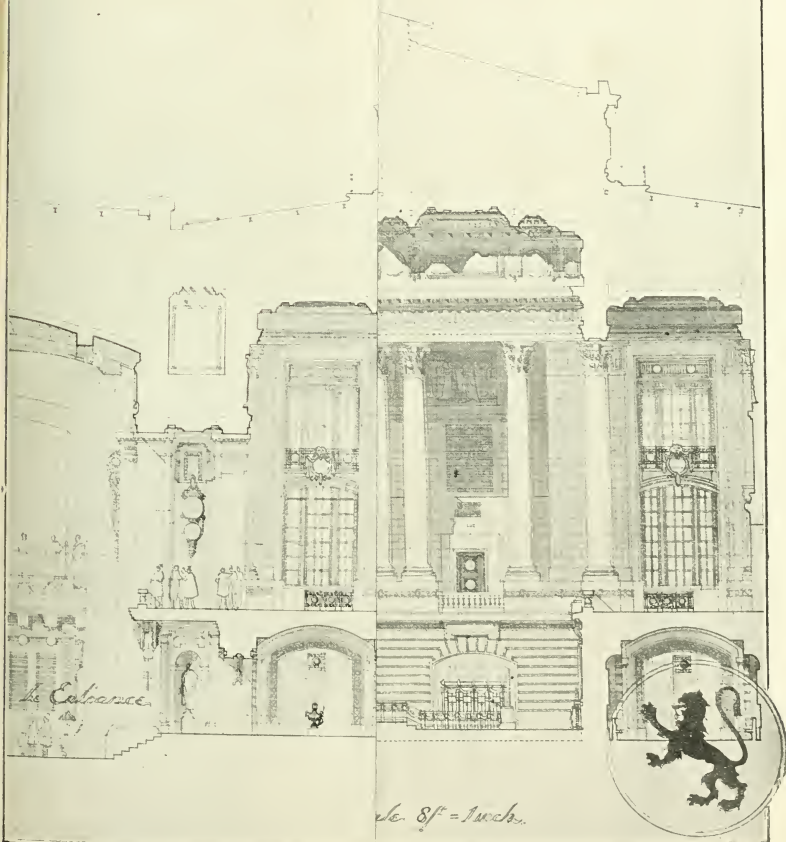
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LIST OF COMPETITIONS OPEN.

| | | | |
|--|---------------------|--|---------|
| Alcantara to San Vicente de Alcantara—Strategic Railway. | | Direction General de Obras Publicas, Madrid | Feb. 10 |
| Shanklin—Liberal Club | £10 10s. | E. G. Medley, Secretary, Clarendon-road, Shanklin | 14 |
| York—Elementary School, Campden-lane (Not Restricted) | | J. H. Mason, Sec., Education Office, Cliford-street, York | 17 |
| Drummen—Railway and Harbour, Junction Station (Assessor) | | The Chief Engineer, Christiania-Drummen Railway, Christiania Mar. 15 | |
| Prestbury, North Wales—Laying-out Estate (Judge, H. V. Lanchester, F.R.I.B.S.) | £50, £70, £229 | Lord Abercromby and Trustees, 33, Henrietta-st., Strand, W.C. | 15 |
| Harrow-on-the-Hill—Enlargement of Public Offices (£4,500 limit, Assessor) | 30gs., 20gs., 15gs. | J. P. Bonesteel, Engineer, Harrow | 16 |
| Wimbor, Mass.—New Parliament Buildings | | The High Comm. for Canada, 17, Victoria-st., Westminster, S.W. | 31 |
| Hawthorn—Furniture Store of Cuban General Masco (Plan and Model) | £40, £25 | The Com. Intell. Branch, Board of Trade, 7, Basinghall-st., E.C. July 30 | |
| Hale—Laying out Unbuilt-upon Portion of District | | J. G. Whynat, Clerk, Council Office, Hale | No date |

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Etingham House,

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Strand, W.C.

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| OUR ILLUSTRATIONS. | |
| Royal Institute of British Architects. Soane Medalion Competition, 1912. The two Prize Designs for a Guildhall in a Park; "Circle City," by Mr. William Friskin; and "Ante," by Mr. Piet de Jong. | |
| Royal Institute of British Architects. Pugin Traveling Studentship Prize Drawings. Sheet No. 2. By Mr. James Macgregor. | |
| Royal Institute of British Architects. The Arthur Cates Prize Drawings, 1912. By Mr. James Bertie Francis Cowper. | |
| Small Schools recently erected in Leicestershire. Mr. E. G. Fowler, Architect. | |

TIME- AND PIECE-WORK AND PAY-DAY IN THE MIDDLE AGES.

What we now call piece-work was known in the Middle Ages as task-work, though few references to this form of labour are to be met with. Of such references, however, perhaps amongst the most interesting are those to be found in an account of some building operations carried out at Hunsdon, in Hertfordshire, at the beginning of the 16th century.

This account of work done, material used, and wages paid is now in the Public Record Office, where it is labelled Exch. Acc. 465-20. In this document we find a careful statement of the work executed by the bricklayers, and immediately succeeding this we meet with the following addition:—

With certayne worke letten to them by Taske, as alle the wallis and crose wallis composing the orchard grounde and the yarden at Xvd. the m [thousand] laying and Xvjd. for every c of brick hewing which were spent and imployed in the copyng of the seid wallis. And making of all the doores and gates in the same wallis with quysere other Taske workes.

The above statement seems to imply that, in addition to the work done by the day, the same bricklayers had "let" or given out to them certain additional work at a fixed rate by the piece.

The next reference to task- or piece-work refers to that done by the tilers. In their case, it will be seen that they, too, were paid by the day and also by the piece of laying a thousand tiles:—

Tylers working as well by the day as laying by the m.

It is an interesting fact that these tilers were also engaged in "taking of tyles saufte froon clide houses taken downe," such tiles being apparently used again for the new work.

The same MS. also tells us that the carpenters worked by day and by the piece. By the day the master carpenter received 12d., the warden sd., inbovers sd., and 7d., and others 6d. and 5d.

Payment by the piece is expressed in the following terms: "Certeayne workes letten to them by Taske—as the ende of the great galerye with ii chambres above the same, the great sluice in the nether-most pond and dyserse other taskworkes." The repeated phrase "certain work letten to them by task" may indicate possibly a custom of working overtime. In one part of the manuscript in which the phrase occurs, we have a reference which seems, in a measure, to support such an interpretation: "Artifflers and laburers ther working as well by the day as by Taske that vs to saye somme of them by longer tyme than

somme and begynnyng and endyng ther wagies at sondry dayes within the tyme of this declaration."

The joiners engaged were on a different footing. Unlike the other craftsmen employed on this occasion, the joiners were paid by the task only. In the words of the manuscript, they were employed "all by tasks." But, as we shall see later, joiners, like other artisans, were generally paid by time.

We may now turn to another manuscript (474-12), and note some references to task-work executed by workmen employed at the Tower of London about the same period. In this bill we have the account for wages paid for work "wrought by the daye," and a series of payments with the heading "Redy mony payde in prest vnto sundry carpenters in party of payment of serten frames taske worke." Murray's Dictionary tells us that "in prest" means "in advance." We thus see that the modern system of "sub-money" was not wholly unknown to the building trade in Medieval England.

In another series of payments entered we read of work "Wrought and fynnysshed by the day by carpenters," and of "A new frame to be made in taske now fynnysshed and redy to be sett vp"; work which was "redy made in taske"; work which was "made in taske and almost fynnysshede"; and work "wrought in taske, half fynnysshed."

The account of the work done by the plumbers is headed "Plumbers: wrought by the daye and in taske during this tyme"; but which part of the work was paid for by the day, and what part by the task, is not set down.

The joiners in this account worked partly by time and partly by task, for we read of certain work being done, "the account of which concludes with the words, 'and the forsayd, the Kynges dynyng chamber, vs almost fynnysshed, wrought by the yarde in taske.'"

The account of the work of the glaziers is headed: "Glaziers wrought as well by the day as by taske"; but here, again, no indication is given as to what was executed by task.

Leaving now those accounts which refer to work done by numbers of men engaged at a time, we may turn our attention to the engagement of a particular class of artisans—the sawyers, who more frequently than other Medieval craftsmen were accustomed to work by the piece. Even in their case, however, it is clear that they were far more frequently paid by time than by piece-work.

The following example of payment by

the piece stands alone in the account from which it is taken, all other payments to sawyers being by time:—

To the same ii. sawyers for sawyng of VC of borde at Xiid. the hundrethiVs. (Exch. Acc. 544-12.)

To sum up the result of our inquiries, we find that in the Middle Ages practically all classes of workmen worked both by time and by the piece; that the mention of task-work, stated as such or implied, is very rare; that almost all accounts of Medieval builders show the workmen to have been employed by the day. Consequently we may fairly conclude that piece-work was not common in Medieval England, the general system adopted being that of payment by time.

Pay-day in the building trade during the Middle Ages was, as it is now, the last day of the week—Saturday. The most satisfactory evidence of this is, perhaps, to be found in a book of accounts now in the Public Record Office, which contains a record of the particulars of work carried on at Barking in the time of Henry VIII. (Exch. Acc. 542-3). In this volume the payments to the various workmen employed are set down with unusual precision. Carpenters, sawyers, and "mersshmen" are engaged on the work in progress. The marshmen appear to have been unskilled labourers; they received but 6d. a day, and are mentioned as "dygging" and "laboryng." Probably they derived their appellation from the fact of dwelling on or near the Thames marshes.

At the commencement of the accounts we see that the men were paid by the day, such being possibly a common method of payment until the craftsman had been proved efficient and satisfactory. On the first page of the book we read:—

Mondaye the ii daye of Aprill: Carpenters. Fyfirst paid John Mounte, Master carpenter there, the day

Item paid to John Stevenson

The names of two other carpenters follow, and on all the rest of the days of that week the daily payments to the same men are set down. These daily payments cover the period from April 2 to July 28, when we find an entry of payments to workmen on the "Saturdaye the XXVIII daye of Julye." The next batch of payments to the men is on the following "Saturdaye," August 4, and in every subsequent Saturday all the workmen—carpenters, sawyers, and marshmen—are stated to have received "on Sat. daye" their work's wages. The following extract describes the Saturday payment to the carpenters, and in exactly the same way

the payments to the sawyers and marshmen are set down, each with the heading describing the payment as on the Saturday and the date of the day being also given.

Paid to the carpenters on Saturday the XI daie of August.

Item paid to John Mounte, carpenter, for hewing and squaring of timber for the frame at the eyxe gates, by VI daies, ended the same daie, at XIII. the daye VI.

Item paid to Robert Colyer for hewing and squaring of timber for the suide frame, by VI daies, ended the same daye, at VIII. the daye III.

Sometimes, but not often, a man did not work for the full six days, but only for one, two, or more. Even then he received his money on the Saturday, being then paid for the exact number of days he had worked. This is shown by the following extract from the same volume:

Payde to the carpenters on Saturdaye the IXth daie of February

Item payde to Richard Tayour for workinge there by vii daies II.

The loss of days may have been due in part to the keeping of a saint's day or special festival of the Church, upon which all were enjoined to desist from labour and business. Also the loss might at times be due to causes which operate with us to-day—illness, accident, or possibly an encounter with that national beverage which finds mention even in Medieval building payments.

At no time do the number of days worked exceed six, the Sunday being throughout the Middle Ages always accounted a day of rest and recreation.

Though the day of the week for the payment of wages to the men is not commonly mentioned, many records of weekly payments remain, and there is no reason to suppose any other day but Saturday to have at any time been the day on which the wages were paid. The following example, selected quite at random, affords an instance where the wages are paid weekly, but the day is not mentioned. This extract is taken from the Record Office MS. Exch. Acc. 464-20.

The VIth Pay for the maner of Hanworthe, the workemen's wages, begynning the XXXI day of August and endyth the V day of September in the XXXVII yere of the raygne of our soverayn lord King Henry the VIIIth, by the space of VI daies inclycure [inclusive].

Carpentres paid { John Pawlwyn for VI daies at
XIIIId. the day IIIs.
Henry Kynmore for VI daies at
VIId. the day IIIs. VI.

Now if we turn to Bond's "Handy Book of Dates" we shall see that the 37th year of Henry VIII. was 1545, and the dominical letter was D. Now, turning to the tables in "Nicholas' "Chronology of History," we shall see that the 31st day of August was a Monday, and the 5th of September a Saturday. Probably it is not assuming too much to suppose that an investigation on these lines of the days of payment of Medieval wages would show the last day of the six to have been in every case a Saturday. In any case the extracts we have given afford very substantial evidence that Saturday was the day on which Medieval builders' workmen received their wages.

We may here add that the actual cost to pay the workmen was in the case of extraordinary payments kept on the spot. We may gather this from a reference to the contents of a new book for "the paye house" in the building accounts in the Record Office MS. Exch. Acc. 477 12.

In the register of wages we find the payments to have been made apparently fortnightly, such seems to have been the

case in some work done in the Tower of London in the summer of 1533. We read:

Pay day the XV. daye of June.
Pay day the XXX. daye of June.
Pay day the XIII. daye of July.

27th July, 10th August, and so on.

A very similar record is to be found in MS. 483-15, dating 1539, but in all instances where the day of the week is mentioned, it is invariably a Saturday.

ESTIMATING FOR REINFORCED-CONCRETE WORK. II.

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MATERIALS FOR CONCRETE.

PORTLAND CEMENT.

The Portland cement should be specified to comply in all respects with the standard specification adopted by the British Engineering Standards Committee, and to be of a slow-setting description. This specification requires that briquettes (1 in. sectional area) of neat cement shall sustain an average tensile stress of 400lb. per square inch after 7 days, and 500lb. after 28 days.

In the United States, the American Society for testing materials have adopted as a standard specification, that neat Portland cement shall sustain an average tensile load of 175lb. after 24 hours in moist air; 500lb. after 1 day in moist air and 6 days in water; and 600lb. after 1 day in moist air and 27 days in water.

Portland cement can now be readily obtained in England, which will sustain an average tensile stress of 450lb. per square inch sectional area after 3 days, when made with neat cement; 650lb. at 7 days; and 800lb. at 28 days; whilst briquettes made with 1 part cement to 3 of standard sand will sustain a tensile stress of 250lb. at 7 days, 300lb. at 28 days, and 400lb. at 3 months. In this country, Portland cement is ordinarily sold in bags of 200lb. weight each.

For reinforced concrete work of an important character, a special brand of Portland cement—known as "Ferrocrete"—is now largely used. It is packed in bags of 100lb. weight. Briquettes made with 1 part cement to 3 of standard sand will sustain an average tensile stress of 350lb. per square inch at 28 days, whilst concrete test-cubes made with 1 part cement to 5 of aggregate require an average crushing weight of 2,500lb. per square inch before being crushed.

WEIGHT OF CEMENT, ETC.

Portland cement weighs from 112lb. to 116lb. per struck imperial bushel, or an average of 90lb. per cubic foot. Portland cement is sold by the manufacturers at per "cement ton" of 2,200lb., and by retail dealers at per cental (or trade bushel) of 100lb.

1 imperial bushel = 1.2836 ft. = .0475 yd. = 28.349 lb.
1 cft. = .779 imperial bushel = .0376 yd. = 1728 lb.
1 cft. = 21.003 imperial bushels = 2 cft. = 40.696 in.

1 cental of Portland cement = 100lb. = 1 trade bushel of Portland cement.

1 bag of Portland cement = 50lb. = 2 centals = 2 trade bushels = 2 ft. cube approx.

1 bag of "Ferrocrete" cement = 100lb. = 1 cental = 1 trade bushel = 1 ft. cube approx.

AGGREGATES FOR CONCRETE.

Concrete should consist of a suitable proportion of coarse and fine aggregates mixed with Portland cement, so that the whole may form a solid, compact, and homogeneous mass. The aggregates chiefly used are gravel, ballast, shingle, sand, broken stone, granite, brick, slag, coke breeze, cinders, etc. For concrete with metal reinforcement, coke breeze or cinders should not be used, although these materials are suitable for partitions, filling

in to floors, etc. When metal reinforcement is embedded in concrete of a porous description, it is liable to corrosion from moisture, etc., but if laid in dense, well-made concrete, the metal is preserved from external influences. Broken slag aggregates require very careful selection and preparation if used for reinforced concrete, as nearly all slags (especially copper slags) contain traces of sulphur, which is deleterious to the steel reinforcement. Some descriptions of steel slags are, however, frequently used for ordinary concrete in foundations, paving, etc. The slag should preferably be twice burnt in heaps, and allowed to weather in the open air for some time before being used for concrete work.

COARSE AGGREGATE

consists of gravel, broken stone, etc., which is retained on a screen of 3-16 in. mesh. The maximum size to be specified for the aggregate is dependent on the purpose for which the concrete is required. For reinforced work the maximum size of the aggregate should be such that the wet concrete can be easily placed around the reinforcement members, and in the various parts of the forms or moulds. The coarse aggregate for reinforced concrete should be "double-screened," and broken to pass a 3 in. mesh, but not 3-16 in. mesh. For ordinary concrete in foundations, pavings, etc., the aggregate should be broken to pass 1½ in. mesh, but not to pass 3-16 in. mesh, whilst for concrete in large masses, a maximum of 2 in. mesh will suffice.

FINE AGGREGATE

consists usually of sand. When crushed granite, stone, or gravel screenings are used, they should be specified to pass 3-16 in. mesh, but not 1-16 in. mesh. The fine aggregate, whether sand, crushed granite, or gravel screenings, should be entirely free from dust, dirt, clay, or earthy particles, and, if necessary, should be washed before use, so that it may combine with the cement to form a suitable mortar for filling up the interstices, and cementing together the portions of coarse aggregate which form the greater part of the finished mass of concrete. Sand, suitable for the fine aggregate, is obtainable in nearly all districts in this country.

WEIGHT OF MATERIALS.

The average weight of granite, stone, bricks, and other materials used as aggregates for concrete, and weighed before breaking, etc., is as follows:—

| | Weight per foot cube—lbs. |
|---------------------------|---------------------------|
| Granite | 170 |
| Sandstone | 150 |
| Limestone | 140 |
| Bricks, ordinary | 120 |
| Gravel, with sand, moist | 110 |
| Gravel or shingle, coarse | 95 |
| Sand, coarse | 145 |
| Sand, fine, dry | 94 |
| Coke, breeze (screened) | 45 |

VOIDS IN AGGREGATES.

The proportion of voids in aggregates varies according to the maximum and minimum sizes to which the material is broken and screened. The larger the size of the individual pieces of aggregate, the greater the proportion of voids. To produce a good and compact concrete, the material should be broken to such maximum and minimum gauges, that a complete range of varying sizes may be produced, which will to some extent pack themselves together, and thus reduce the amount of space remaining to be filled in solid with the sand (or fine aggregate) and cement. The following table gives the average proportion of voids for aggregates of different sizes, filled into a measure without shaking or compressing the materials, viz.:—

COARSE AGGREGATES.

| | Average percentage of voids per yard cube. |
|---|--|
| Granite, slag or stone, broken to pass 3 in. mesh, but not to pass 2 in. mesh | 47 per cent. |
| Gravel or shingle broken to pass 3 in. mesh, but not to pass 2 in. mesh | 45 " " |
| Brick broken to pass 3 in. mesh, but not to pass 2 in. mesh | 44 " " |
| Gravel or shingle broken to pass 3 in. mesh, but not to pass 2 in. mesh | 42 " " |

FINE AGGREGATES.

| | |
|---|--------------|
| Sand, fine, passing 30 in. mesh | 33 per cent. |
| Gravel, coarse, passing 3 in. mesh | 35 " " |
| Crushed granite or stone, passing 30 in. mesh | 38 " " |

WEIGHT OF AGGREGATES.

The weight of an aggregate depends on the nature of the material and the percentage of voids present. Granite, slag, or stone aggregates broken to pass 3 in. mesh, but not 3-16 in. mesh, contain about 45 per cent. of voids. Taking the weight of granite at 170 lb. per foot cube, the average weight of 3 in. to 3-16 in. granite aggregate = $170 \times .55 = 93$ lb. per foot cube, or 22 cwt. per yard cube. The average weight of various descriptions and grades of aggregate is as follows:—

COARSE AGGREGATE.

| | Average weight per yard cube. | Ft. cube per ton. |
|---|-------------------------------|-------------------|
| Granite broken to pass 3 in. mesh, but not 3/16 in. mesh | 22 cwt. | 24 |
| Gravel or shingle to pass 3 in. mesh, but not 3/16 in. mesh | 22 " " | 24 |
| Sandstone, broken to pass 3 in. mesh, but not 3/16 in. mesh | 20 " " | 27 |
| Limestone, broken to pass 3 in. mesh, but not 3/16 in. mesh | 18 1/2 " " | 28 |
| Brick, broken to pass 3 in. mesh, but not 3/16 in. mesh | 16 " " | 34 |
| Coke breeze, broken to pass 3 in. mesh, but not 3/16 in. mesh | 11 " " | 50 |

FINE AGGREGATES.

| | | |
|--------------------------------------|--------|----|
| Sand, ordinary | 24 " " | 22 |
| Crushed granite, passing 30 in. mesh | 24 " " | 22 |

SUPPLY OF AGGREGATES.

The increasing use of reinforced concrete for engineering purposes has resulted in considerable attention being directed to the economical and systematic preparation of aggregates of uniform grade and quality. The careful screening of the aggregate to specified sizes is essential for the production of a uniform quality of concrete. Large quantities of broken granite, slag, and stone are also used for tarmac and road-making purposes generally. The demand for crushed granite, slag, stone, gravel, sand, etc., has therefore developed to such enormous proportions that many firms now specialise in their exclusive production. The materials are quarried, broken or crushed, and screened in the most economical manner with the aid of labour-saving machinery, and in such large quantities that it is frequently much cheaper to purchase the coarse and fine aggregates ready prepared for use than for the ordinary contractor to buy or quarry the material and afterwards break and screen it to the specified sizes.

CRUSHING OR BREAKING THE AGGREGATE.

Hand-broken and screened aggregate is considerably more expensive than machine-broken material; but hand-breaking produces a stronger form of aggregate. The material is more cleanly broken by hand than by machinery, as the latter crushes instead of cleaving the aggregate to the desired sizes. A man will break about 1 cubic yard of brick aggregate in four hours to pass 1 1/2 in. gauge (measured after breaking), 1 cubic yard of stone in six hours, and 1 cubic yard of ordinary granite in eight hours, giving an approxi-

mate cost of 2s. 3d., 3s. 6d., and 4s. 6d. per cubic yard respectively.

The average cost of breaking or crushing stone, granite, etc., under ordinary conditions, including screening to required sizes, is as follows:—

COST OF BREAKING STONE, ETC., PER YARD CUBE.

| | To pass 3 in. mesh, but not to pass 3/16 in. mesh. | To pass 3 in. mesh, but not to pass 3/16 in. mesh. |
|----------------|--|--|
| Hand Broken | 4s. 6d. | 4s. 8d. |
| Granite | 3s. 6d. | 3s. 8d. |
| Bricks | 2s. 3d. | 2s. 4d. |
| Machine Broken | 2s. 3d. | 2s. 4d. |
| Stone | 1s. 9d. | 1s. 10d. |
| Bricks | 1s. 3d. | 1s. 4d. |

WATER FOR CONCRETE.

Only clean water should be used, and, where practicable, fresh water should be specified in preference to sea-water. The quantity of water used in making concrete depends to a large extent on the nature and proportions of the aggregate and the purpose for which the concrete is required. Aggregates of a porous character, such as broken brick, etc., require a larger quantity of water, owing to their absorbent nature, than is necessary for a practically non-absorbent material, as granite. The following table indicates the average volume of water absorbed in 24 hours by different materials:—

| | Volume of water absorbed, as compared with volume of material. (Average) | Gallons of water absorbed per ft. cube of solid material. (Average) |
|-----------------|--|---|
| Granites | 1 per cent. | 1/4 |
| Sandstones | 8 " " | 1 1/2 |
| Limestones | 12 " " | 2 1/2 |
| Brick, ordinary | 20 " " | 4 1/2 |

When mixing concrete, the water should be added gradually, so as to secure a uniformity of mixture. Water assists consolidation, and the concrete should, therefore, not be used in too dry a condition. For ordinary purposes, a cubic yard of concrete requires about 30 gallons of water.

MEMORANDA.

1 gallon of water = 10 lb., = 16 ft. = 377 in. 1 ft. of water = 6 1/2 gallons (approximately) = 62 1/2 lb., = 1,000 oz., = 50 cwt., = 2 1/2 ton. 1 cu. yd. of water = 168 1/2 gallons = 1,682 1/2 lb. = 73 ton. 1 lb. of water = 27 1/2 in. = 406 ft. = 1/4 gallon. 1 ton of water = 234 gallons = 39 1/2 ft. = 1 1/2 cu. yd.

UNIT OF MEASURE.

To avoid any difficulty in the weighing or measuring of cement for hand-mixed concrete, a bag of cement should be adopted as the unit of measure. Taking the weight of a cubic foot of Portland cement at 90 lb., a 200 lb. bag of cement equals 2 2/3 foot cube, whilst a 100 lb. bag of "ferrocement" equals 1 1/3 foot cube. For 1:2:4 concrete, unit measures containing 4 1/3 foot cube of sand (or fine aggregate); 8 2/3 foot cube of coarse aggregate for each 200 lb. bag of cement should, therefore, be provided, or some multiple of this proportion of measure.

MIXING CONCRETE.

Machine mixing is preferable to hand mixing, and where practicable should be specified. Every care must be taken that the proper proportions of cement and fine and coarse aggregates are systematically determined and rigidly adhered to. When mixed by hand, the concrete for reinforced work should be mixed in small batches, so that the whole may be used before setting commences. For quantities of less than 500 cubic yards, it will generally be cheaper to mix the concrete by hand, whilst for larger quantities machine mixing will be found more economical. No concrete which has begun to set should be used. Experiments have shown that cement concrete mixed for two hours before being used loses one-fifth of its normal strength as compared with similar freshly-mixed concrete.

CONSISTENCY OF CONCRETE.

For reinforced work the concrete should not be used in too dry a condition, but a moderately wet mixture is provided. The materials should be mixed sufficiently wet (but not in a liquid condition) to allow the concrete mixture to be readily placed around the metal reinforcement, without separating the coarse aggregate from the cement and sand. The concrete should be well worked and panned into the forms and around the reinforcement, so that when set it may be of such density that it is practically air- and water-tight.

SHRINKAGE OF MATERIALS.

The materials for concrete being separately measured in a dry state, a considerable shrinkage occurs when they are mixed with water, thoroughly incorporated, and finally consolidated or rammed in position. Portland cement, when mixed and consolidated with water, shrinks about 12 per cent., sand (or fine aggregates) about 15 per cent. and coarse aggregates average about 12 per cent. For cement concrete having a proper proportion of fine and coarse aggregates, and laid under average conditions, it is found that from 38 to 39 foot cube of dry materials is required to produce 1 cubic yard of consolidated and well-finished concrete. A total quantity of 39 cubic feet of dry materials has, therefore, been adopted for ordinary estimating purposes. The average total shrinkage in the bulk of dry materials for concrete, when mixed together with water and consolidated, amounts to about 29 or 30 per cent.

PROPORTIONS OF CEMENT AND AGGREGATES.

In all cases the proportions of cement, fine and coarse aggregates, should be separately specified by volume; but to insure, as far as possible, a uniform quality of concrete, the quantity of cement required should be added by weight to the bulk of aggregate. The average weight of Portland cement (British standard specification) may be taken at 90 lb. per cubic foot, and its volume should accordingly be calculated on this basis. For ordinary reinforced concrete, a proportion of 1 part cement to 6 parts of fine and coarse aggregate is largely used. The fine and coarse aggregates should be separately measured. For 1-to-6 concrete, the proportions generally adopted are: 1 part cement, 2 parts sand (or fine aggregates) and 4 parts coarse aggregate. For convenience, this proportion is written as 1:2:4, and this convention is now in general use. Richer mixtures of concrete are frequently used for reinforced-concrete piles, piers, beams, etc., such as 1-to-4 or 1-to-5 concrete; whilst for ordinary and reinforced concrete in foundations a weaker mixture of 1 to 8 or 1 to 9 may suffice. The proportions of the concrete materials should be so arranged that the cement and fine aggregate when mixed together will form a sufficient quantity of mortar to slightly more than fill all the interstices of the coarse aggregate, so that the resultant material may form a compact mass.

CONCRETE MIXTURES AS USED FOR ORDINARY PURPOSES.

General Building and Engineering Work.

1 to 9 concrete (1:3:6)—For ordinary foundations where no great strength is required. Use for foundation concrete to ground-floor pavings, &c.
1 to 6 concrete (1:2:4). For breakwaters, dock walls, foundations, retaining walls, reservoirs, piers, &c.
1 to 5 concrete (1:1 1/2:3)—For engine and mill chimey foundations, walls to retain high pressure, piers for heavy weights, &c.

Reinforced Concrete Works.

1 to 8 concrete (1:3:5)—For foundations in heavy masses, &c.
1 to 6 concrete (1:2:3)—For foundations, buildings, piers, &c., where no great strength is required.
1 to 5 concrete (1:2:4)—For ordinary walls, &c.

floors, drains, gutters and upwards, retaining walls, bridges, quays, culverts, conduits, heavy columns and beams, roofs, buildings, and general work.

1 to 3-concrete (1:1-3). For sea-walls, reservoirs, &c., where impermeability or resistance to water pressure is required, roofs, domes, stanchions, piers, tanks, short piles, cast and moulded concrete work, &c.

1 to 4 concrete (1:1-4). For walls and floors, drains, thick piles, tanks, piers, cast and moulded concrete work in door and window heads, sills, &c., and for specially strong piers, beams, waterproof work, &c.

1 to 4 concrete (1:1-4). For walls, floors, partitions, &c., under thin, thick, roofs, domes, piers, &c., where exceptional strength and durability is required. Also for cast and moulded concrete work in door and window heads, sills, &c., in exposed positions.

1 to 5 concrete (1:1-5). For floors and walls under thin, thick, piles, columns, &c. Also for fine cast and moulded work, subject to heavy wear.

In the United States, the American Association of Cement-Users have introduced the following classification for representative concrete mixtures, known as "Rich," "Standard," "Medium," and "Lean" mixtures respectively.

A "Standard" mixture is 1 to 6 concrete (1:2:4), and is in general use for concrete floors, beams, columns, arches, reinforced engine or machine foundations subject to vibration, tanks, sewers, conduits, etc.

A "Rich" mixture is 1 to 4 concrete (1:1-3), as for columns and other structural parts subject to high stresses, or requiring exception watertightness, etc.

A "Medium" mixture is 1 to 7 concrete (1:2:5), for ordinary machine foundations, retaining-walls, abutments, piers, foundation-walls, ground floors, pavings, etc.

A "Lean" mixture is 1 to 9 concrete (1:3:6), for unimportant work in masses, large foundations supporting a stationary load, backing to masonry, etc.

The relative proportions of fine to coarse aggregate in any of the foregoing standard mixtures are varied to suit the materials available and local requirements.

The quantities of cement, sand (or fine aggregate), and coarse aggregate required for making 1 cubic yard of concrete depend upon the description and size of aggregate used, and on the specific proportions adopted for the concrete mixture. Under ordinary conditions it is found that for coarse aggregates broken to pass $\frac{3}{16}$ in. gauge, and not 3-16 in. gauge, an average total quantity of 39 cubic feet of cement with fine and coarse aggregates is required for every cubic yard of consolidated and well-finished concrete. The average weight of 1 cubic foot of Portland cement (British standard specification) is taken at 90lb. The detailed quantities of materials used per cubic yard of concrete under normal conditions are accordingly indicated in the following table:—

| MATERIALS REQUIRED FOR ONE CUBIC YARD OF CONCRETE. | | | | |
|--|------------------|------------------------------------|------------------------------|--|
| Proportions. | Cement, c.ft. | Sand or fine aggregate, c. cu. ft. | Coarse aggregate, c. cu. ft. | |
| 1 to 3 concrete: | | | | |
| 1 3 6 | 3.50 (or 351lb.) | 43 | 87 | |
| 1 3 7 | 3.60 (or 351lb.) | 51 | 79 | |
| 1 to 4 concrete: | | | | |
| 1 4 3 | 4.33 (or 390lb.) | 43 | 85 | |
| 1 4 4 | 4.33 (or 390lb.) | 48 | 80 | |
| 1 to 7 cement: | | | | |
| 1 3 43 | 4.58 (or 412lb.) | 42 | 85 | |
| 1 3 44 | 4.58 (or 412lb.) | 51 | 76 | |
| 1 to 7 concrete: | | | | |
| 1 4 44 | 4.97 (or 439b.) | 42 | 84 | |
| 1 4 45 | 4.97 (or 439b.) | 51 | 72 | |
| 1 to 6 concrete: | | | | |
| 1 2 4 | 5.57 (or 501b.) | 41 | 82 | |
| 1 2 5 | 5.57 (or 501b.) | 51 | 72 | |
| 1 to 5 concrete: | | | | |
| 1 2 5 | 6.30 (or 565b.) | 40 | 80 | |
| 1 2 6 | 6.30 (or 565b.) | 48 | 72 | |
| 1 to 4 concrete: | | | | |
| 1 2 5 | 7.10 (or 630b.) | 39 | 79 | |
| 1 2 6 | 7.10 (or 630b.) | 46 | 72 | |
| 1 to 4 concrete: | | | | |
| 1 3 44 | 7.90 (or 702b.) | 38 | 77 | |
| 1 3 45 | 7.90 (or 702b.) | 43 | 72 | |
| 1 to 3 concrete: | | | | |
| 1 1 2 | 9.75 (or 877b.) | 36 | 72 | |

The total amount of materials required for any quantity of cement concrete of specified proportions can, therefore, be readily ascertained from the preceding table by multiplying the unit quantities given therein by the total quantity of concrete required. For instance, 100 cubic yards of 1-to-6 concrete (1:2:4), made with $\frac{3}{16}$ in. to 3-16 in. coarse aggregates, would require 50,100lb. of cement (say 251 bags of 200lb., or 22 9-11 cement tons), 431 cubic yards of sand, and 82 cubic yards of coarse aggregate.

WEIGHT OF CONCRETE.

The average weight of various descriptions of concrete, mixed in the proportion of 1 part cement, 2 parts sand, and 4 parts coarse aggregate, is indicated in the following table, viz:—

| | Average weight per foot cube. |
|--------------------------|-------------------------------|
| Granite concrete (1:2:4) | 148 |
| Reddish concrete | 140 |
| Sandstone | 136 |
| Limestone | 130 |
| Brick | 130 |
| Breeze | 81 |

(To be continued.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual meeting for the address to students and the distribution of the students' prizes and of the Royal Institute of British Architects was held at 9, Conduit-street, W., on Monday evening, the chair being occupied by the President, Mr. Leonard Stokes, Mr. H. T. Hare, Hon. Secretary, moved that a vote of condolence and sympathy be sent to the relatives of the late Mr. William Glover, F.R.A., a past-president of the Northern Architectural Association, and as such a representative of that body for some years on the Council of the Institute. Mr. Glover was, he added, well known for his generous gifts and benefactions to the Northern Association, the Architects' Benevolent Society, the Edward VII. Hospital at Windsor, and the Laing Art Gallery, Newcastle, and many benevolent and philanthropic societies. Mr. Glover, who retired from practice twelve years ago, was eighty-two years of age. Mr. Hare also referred to the recent deaths of Mr. Francis William Humphreys, Fellow, of Trinity-street, Hastings, and of Mr. John Codd, Associate, of Ventnor.

THE ROYAL GOLD MEDAL.

The President announced that the Council had decided to submit for recommendation to His Majesty the King as a fitting recipient of the Royal Gold Medal the name of Mr. Basil Champneys, a recommendation which was received with applause. The recommendation will be brought before the members for confirmation at the business meeting to be held on Monday, March 4.

PRESIDENT'S ADDRESS TO STUDENTS.

The President said as he had failed to produce an address to students from a student, he would try to take himself back rather more than a quarter of a century to his own student days, and relate a few of his own experiences and mistakes; for though at the time he was not of an age when mistakes are generally made, or, at any rate, admitted, yet now he could see very well that he was not quite so infallible as he thought himself to be at the time. Let them take warning, therefore, and remember that it has been very truly said that even the youngest of us may make a mistake! Well, continued the President, my first one was that I began my architectural life much too young, and without proper preparation; but as my health broke down time after time at school, and as I had a taste for building rabbit hutches and drawing tracery-windows with a pair of compasses, a kind friend suggested that an architect's office was a nice easy place to be in—he was by way of being an architect himself, and should have known better—and that as no examinations were necessary, I could easily become an architect! So without more ado I was articled for three

years. There may have been some excuse in my case, but from personal experience I can say that no young architect should begin his career without a thoroughly good all-round education. Whether, from an architectural point of view, he should go to the Universities or not, I am not prepared to say; but from a worldly aspect I feel sure he would be wise to do so. But to return to my mistakes. The first thing my master, who was quite a good architect in his way, asked me was whether I preferred Gothic to Classic architecture. Well, I thought of my rabbit-hutches and my tracery-windows and answered, "Gothic." The result was what I expected, for I was sent to cut my teeth on "the Orders," and as I could not use my instruments at all properly, you may imagine what I made of them. Of course, I should have been taught to draw, and a good many other things besides, before I ever tackled "the Orders" at all—as is now so well done in architectural schools—but, as a matter of fact, after the first few months, I never looked at them again, at least not for many a long year. My master was an old Architectural Association man, and a great believer in that body, so I was told I must join and look forward to holding some office in it as he had done. That was my first ambition. Well, the "Brown Book" was studied, and as the subjects in the advanced class of design seemed easier than those in the elementary class, I plunged into the advanced class without more ado, which, of course, was a great mistake, for whereas my first design was for a cricket pavilion—which taught me next to nothing—I might have been put through my facings on "an Atrium to a Roman House" in the elementary class, for which I should have had to look up some authorities, and go into the subject properly and refer to my old friends, the Orders. But not having any other proper schooling, I must needs try a short-cut to architectural fame! This, of course, was the greatest of all mistakes, for the older I get the more certain I am that a good grounding in things architectural is absolutely necessary; so, if you will be advised by me, you won't try any short cuts whatever, but go steadily on up the ladder, round by round, from the bottom to the top, and if, on looking back, you remember having on occasions taken two or three rounds at one time, go back at once, however near the top you may be, and go over them again, one at a time, before it is too late, for we cannot be too thorough in our studies if we want to be authorities in after life. And if we want to be thorough we must cultivate our observation on all occasions. In my nursery days I well remember a little story we were very fond of, of "Eyes and No Eyes." There was a good little boy "Eyes" who noticed everything, and his walks were full of interest, for he saw the cows milked, heard the birds sing, and smelt the flowers, whereas "No Eyes" came home having been impressed only by the hardness of the road and the length of his walk! Now, life is full of "Eyes" and "No Eyes"—principally "No Eyes"—and the "Eyes" get lost, and "No Eyes" do the reverse, particularly among architects, for what are we without observation? Is not our one way of learning how to produce desired effects to find out how others have done what we want to do, and to make quite sure how they did it? Do we not measure every inch of the admired object, so that we may have it on paper, and by comparing the drawing with the original, make ourselves able to judge what the other may require? So, beginning with our paper work, knowing in our mind's eye what it will look like when produced in bricks and mortar? "Eyes" can do this; "No Eyes" can't. Of course, a sense of proportion is a very valuable gift; whether it can be taught or not I should not like to say; but observation will help us a great deal, and not only observation of the object itself, but also of "Eyes" position, manner, and surroundings; for it is obvious that a slender column which might look right in a screen would look quite wrong carrying a large building, so that we must use judgment with such rules as we have, and to get judgment we must train our own eyes, and not depend on other people's. My three years of pupillage being over, I went by

advice into a quantity surveyor's office for a year; and perhaps the only thing I ever learnt thoroughly in my life was how to "square dimensions" for I spent "six months hard" at it. I also learnt how to tickle a client and a few other "conventionalisms" which have been of no use to me since, except that I now have a general idea of what there should be in a bill of quantities—only too often to find that it is not there! While in the surveyor's office I had a month's holiday, which I used largely in measuring up a fine old church, the drawings of which got me into the Architectural School at the Royal Academy as a probationer, but of course when I got into the schools I found that I knew much more than my masters—a fatal thing, but I was still very young! The teaching in those days, however, was a very perfunctory performance. Each student got—if he was lucky—a few minutes' criticism once a week from the visitor; while, in my case, what I wanted was solid hours of instruction. But I suppose it was my own fault for going to the wrong shop. While in the schools, I made several vain attempts to win a big prize. The first time I think I might have had a chance, but for a much better and more elaborate design. This elaborate design not only lost me that prize, but perhaps the next one also. For the second time I thought that elaboration obviously fetched the R.A.'s, and I would be "elaborate and prize" like Leighton. But giving out the prizes was then a want of "expressional fitness" about some of the designs—and there no doubt was! Elaboration had failed, so next time "expressional fitness" was my one idea! But this did not come off, either! The mistake I made after my first attempt was not going quietly on quietly, but I could without any regard to my judges, and I gave out the results of them. Take warning, therefore, and never whatever you do—either play up—or down!—to your judges, even if they are the Council of the R.I.B.A. Do justice to yourself and yourself only, and never bother about anyone else—until you get a client; and then, unless you have luck, you may perhaps even wish your judges got him. After I had finished my quantity surveying, I went, about the year's quantity surveying, to the Academy, where I got into the Academy School, and went for nearly a year as clerk of the works on a big building, and saw a certain amount of life and its wicked ways in the building line; and then about another year or so at office work, during which time I won my only prize—the Pugin—more by good luck than anything else. There were two other men better than I was, but they were equal that the judges could not make up their minds which of the three was the best, so they gave it to me! Much to my surprise, for although I had sent in some good honest work, I knew that either of the two other men was more likely to get it than I was, but I wanted to get my hand in, for perhaps the following year. Another mistake I made was to avoid the examinations established by the Institute by joining as an Associate amongst the last lot, which were elected without examination, instead of entering then taking to my books and fitting myself in the only right way, for a youngster, to become a member of this Institute. I have now described to you my student days proper, and will let you off the old platitudes about being a student all my life. The only thing that I have omitted to mention is that for about three months in each of four years, I travelled—twice in England and twice on the Continent—my only regret being that the bulk of my work was not more serious and not quite so sketchy; but, in common with other students, my eye was caught by bits of pretty detail, and, instead of worrying out the general scheme, and construction of a fine piece of work, some dodgy little corner which made a pretty sketch was too often selected. Now, the less I want you to learn from all this is that I was too young, and not well equipped for anything, at the time I attempted it, and that I drifted into practice long before I should have done, and here I am in the Chair holding forth to you some ten or fifteen years too soon; not that ten or fifteen years can make any difference to me now, but, properly spent at the beginning of my career, they would have enabled me to address you this

evening with much greater advantage and profit to yourselves as students.

Mr. Gerald C. Horsley, President of the Architectural Association, and Owen Jones student, 1887-8, read the following

CRITICISM OF DRAWINGS SUBMITTED FOR THE INSTITUTE PRIZES AND STUDENTSHIPS, 1911-12.

As in past days, I have myself been a competing student, and retain a vivid recollection of the hopes and fears incident to that period of development and effort, my desire to-night in criticising these drawings is to compare justice with sympathy; and if I have to point out what appear to me to be mistakes, it is with the sole purpose of helping the competitor in his future work. On the whole, the number of students who have entered for the competitions this year is well up to the average. For the Essay prize, twelve competed; for the Soane Medallion, thirteen; for the Tite Prize, eleven; for the Pugin Studentship, nine; for the measured drawing prize, five. On the other hand, the Owen Jones Studentship, the Arthur Cates Prize, and the Grissell Gold Medal have, strange to say, not attracted many competitors. Time has not permitted me to read the essays which were submitted; but I am indebted to Mr. Reginald Blomfield, who took part this year in judging them, for some valuable remarks concerning them. The essays for the Pugin and the Grissell Silver Medal were unequal. Some of them were irrelevant to the subject, but that sent in by "Redundancy," to which the prize is awarded, is an exhaustive and thoughtful essay on a difficult subject, and has well earned the prize. Certain serious literary faults appear in the majority of these essays, such as a tendency to rhetoric, which fails of its purpose; a habit of pouring out the essay with quotations from every possible writer, poets, essayists, and others, many of them having little or no bearing on the points under consideration, flippancy and familiarity in style, occasional lapses of grammar, and, lastly, a mistaken conception of what either an essay or a book should be. Many of these essays are mere strings of classification; the subject is divided and subdivided till it runs out like a river, lost among the sands. No central idea emerges as a result of all this industry, and the writer appears to forget that an essay or a book should be an organic composition with a beginning, middle, and end, and a backbone of some definite idea running through the whole. The object of these essays is not a display of literary fireworks, but the clear and logical presentation of the author's conclusions, which result from the careful study of facts. The art of the writer should not obtrude itself; it is shown in the orderly marshalling of his forces, in the lucidity and precision of his statement, and in a certain suppressed emotion that gives the deeper harmonies of his music. A method of writing which shocks and jars is wrong. It is with writers as with artists, the best are those who make their method and technique invisible. I would recommend this excellent criticism to the consideration of all architectural students. The time must come when the many-sided character of an architect's education will necessitate a better understanding and co-operation between our architectural schools and the secondary schools of this country. In turning to the exhibition of drawings, we find it consists, as usual, of two parts: (1) That which comprises exercises in design; and (2) studies in ancient architecture. In forming some judgment of these two divisions, a careful observer will discover a certain weakness in the design section, and a certain strength in the other. The fact that this year the Soane Medallion has not been awarded supports this view. The strength in the design section lies in the fact that the work submitted is generally of a high standard. The way in which he has solved the problem presented for solution, and the quality of his drawings, should be particularly noticed. He has best fulfilled the purpose of this competition, which is to produce a fine design, finely drawn. The Soane Medallion is not awarded this year for the reason that no one of the designs shows a real grasp of the conditions

governing the competition, or an entirely satisfactory solution of the problem. The Council have decided, in consequence, to bracket together the two designs under the title of "Circle City," and to enter in the Honourable Mention and to divide the prize of £100 between the authors of them. With the decision of the Council I agree, for it must be admitted that justice has been done in circumstances where the choice and decision were of considerable difficulty. The two successful designs represent two different views of the problem, and neither has wholly succeeded. "Circle City" has, apparently, been over-influenced by the fact that the building is intended to stand in a park. The simple lines of his plan, with all the principal rooms on the ground floor, suggest too much an enlarged garden pavilion. This suggestion is fatal to the expression of dignity a civic building should possess. Moreover, it is questionable whether in actual building the juxtaposition of a rectangular and circular structure would look well, and should also fear, in a circular building of this size, the creation of tiresome echoes. The arrangement also of the plan has prevented the provision of a suite of reception-rooms in direct connection with the principal apartments. Although a large and handsome reception-room is shown on the first floor, it is too remote, and is only directly connected with a small gallery of the Guildhall. "Circle City's" chief strength lies first of all in the restraint which is shown in the design of his elevations, a restraint which is very welcome in these days of what is called "Free Classicism," and, secondly, in the way in which he has displayed his design; the drawings in pencil, with light washes of colour, are the best in the room. The author of the set marked "A" has treated the problem very differently. His plan is of the type of an hôtel de ville; but the elevations, notably the façade, adorned with caryatides, which give an unusual touch of gaiety to the design, are very appropriate to the open position proposed. The weak spot in the scheme is that the central Guildhall is too small. The small size of the hall has led to the entrance-hall being unnecessarily large, and it is doubtful whether the assembly-hall and reception-rooms on the first floors are of sufficient dignity or importance. Generally speaking, the author is to be congratulated upon a design which is restrained and dignified in character. With the exception of the site plan, and some accessories in the perspective drawing, which would be better away, the draughtsmanship is decidedly good. The principal criticism of the reception-rooms is that they are not in direct connection with the Honourable Mention which he has won. In my opinion, his plan is the best in the competition. Had his elevations and sections displayed greater powers in design, this set would have surely earned for its author a more prominent position. The chief excellence of the design lies in the plans; the grouping of the reception-rooms at the head of the principal staircase, between the banquetting hall and small hall, on the first floor, is particularly happy. Again, the Guildhall itself is admirably placed and excellently designed for its purpose. The author has evidently paid special attention to the many details in accommodation necessary for a building of this important character. It is unfortunate that the drawings in this set are rather too black and too closely executed. Drawings which are delicately and beautifully delineated are more attractive and more helpful in portraying a design. "Sailing Ship" has a symmetrical, and, in many respects, a very well arranged plan, especially that of the first floor, where the banquetting and small halls are well placed with excellent separate entrances. The Guildhall suffers through not being better connected with the principal entrance. A feature of the scheme is its elliptical front and fine central tower. It is regrettable that the drawings, generally so good, should show signs of hurried workmanship. "Fraternity" has a grandiose scheme on lines which seem to be rather too large. This defect has led to a serious separation of the reception-rooms from the large halls of the building, and there is a certain monotony in the square

form of the three principal rooms. "Dragon" is to be congratulated on the bold attempt he has made to produce a monumental building, based upon Greek detail of the Ionic period. The drawings, imaginative though they are, suffer from the peculiar technicality of the style are over-coloured and over-shadowed. In "De Tempore" the plan is too small for the purpose, and the disposition of the rooms and the arrangement of the corridors show a need of further study. The elevations exhibit a tendency to strive after a picturesque effect, which none but those who are quite sure of their ground should attempt. "Experientia" is rather over-elaborate by the use of the architecture in which he has chosen to express himself. Though he has a good symmetrical plan, it is too crowded with columns. "Sign of the Black Fish," "Vita," and "Guilt" have adopted an octagon form upon which to base their designs. This has led to trouble in the attempt to satisfactorily reconcile the claims of the many parts a Guildhall must possess. Turning to the drawings submitted for the Tite Prize, mention has been already made of the excellence of work provided by the winner, Mr. Louis de Soissons. The plan is admirable for the purpose—namely, the central courtyard of a Royal Exchange. It is thoroughly well thought out, stately, with ample and dignified entrances. The courtyard itself is as large as possible, a first consideration in a Royal Exchange. The proportions of the building are exceedingly good, especially in the well-designed "order" of the interior. The drawings are beautifully executed, and gain technically by the careful showing of the jointing. "The Circle" well deserves its Certificate of Honourable Mention. It is a well-drawn set, though rather over-tinted in too sombre and dark a grey; but the plan is beautifully drawn, and so also is the elevations, quarter-faillaise details. The whole design, by its close following of Italian detail, keeps strictly within the expressed intention of the competition. "Grezalah" has adopted the rectangular form in his plan, but he has produced too small a courtyard. If the plan thereby fails a little in dignity, the section shows an architectural scheme which would be very effective. The proportions are good (except at the end of the building), and there are interesting suggestions for the use of colour in the decoration of the walls and ceilings. "Dum Spiro Spero" has submitted an admirably executed set of pencil drawings, delicately washed in colour. The courtyard, which is finely designed, has sides of insufficient height, the small attic above the main order drawing a curiously stunted effect. Though the six entrances are too narrow, the plan generally is well designed. The motto "Centres" shows a spacious circular court, but a want of complete harmony between the upper and lower orders in the elevation would detract from its dignity and interest. The columns in the upper order, which are placed in couples, one behind the other, would have an unpleasant effect in perspective. The draughtsmanship is good, and the drawings are very strongly coloured. "Black Cat" has submitted a set of drawings, but, like others of these designs, the detail sheets are a little weak; too much space is given up to the shops and not enough to form spacious entrances. "Hampton Pallioliars" has approached this competition in a wrong spirit. To graft a weak solution of Sir Christopher Wren's work on Hampton Court in the upper order of his design upon a Renaissance Doric Order on the ground floor is not a serious attempt at design, and must fail to produce a work of artistic merit and architectural character. The plan and quarter-full-size drawings in "Phi-Alpha" design is very good pencil work, but the design shows a lack of study in the all-important matter of proportion, and the arrangement of the rooms is a singularly crude and unfortunate effort. The designs by "Ikk" and "Eso Fecit" show that their authors need study in the art of drawing, and of composition in the art of design. "Amities" submit some well-drawn elevations in pure line, but his perspective drawing is weak and the design has no hold in

its roof. On leaving the consideration of these drawings for the Soane Medal and the Tite Prize, permit me to congratulate the Royal Institute upon its recent decision to make a competition in design one of the mainstays of its work in its new section. This competition will oblige the student in the future to study design systematically. In the competition for the Grissell Gold Medal the prize has been awarded to "MCMXII." Undoubtedly this design best fulfils the requirements, though, personally, I should prefer a more dignified architectural treatment for the housing of an art exhibition. The plans have many faults, but the use of material—viz., ferro-concrete—has put him self out of court; the plan is not very good, the galleries are too narrow, and the exterior of the building is lacking in dignity. "Fleur de Lys" has the requisite temporary character, although the exterior brick walling is not so satisfactory as the construction shown in the winning design. The plan is better than the elevations, the latter being weak architecturally. As a whole, the design is conceived on too modest a scale. Though "P. O. M." has worked out his steelwork details with considerable thoroughness, he has failed to produce an architectural scheme. Turning to the second part of the exhibition, the Measured Drawings Prize and Silver Medal is a very good competition. Mr. Maxwell has well earned the prize. His portfolio of measured drawings is an admirable example of what such a collection should be. Taken together with his finished drawings, it shows that his study of this beautiful old house, Compton Winchates, has been thorough and exhaustive. He has realised more than any of the other competitors the special purpose of this prize—viz., to encourage a comprehensive and highly intelligent study of an ancient building of importance. I should, however, draw attention to the fact that the finished drawings consist of mounted tracings from drawings made on the spot. Such a practice is to be strongly deprecated, for tracing paper, however well mounted, is a fragile material of little natural permanence. Measured drawings of this importance may pass into our national collections, such as that at South Kensington, and should be on sound English drawing paper. The competitors who have received Honourable Mention have both submitted sets of drawings of great merit. The technical excellence of their work is very good. "Arno" has particularly distinguished himself in his detail-drawing and in a perspective sketch. It would have been possible to commend these two sets more highly had the original surveys made on the spot in both cases shown better evidence of a close investigation of the essential qualities of the buildings. The author of the drawings of the Palazzo Chiericati, Vicenza, has made, as has also "Sphinx," great efforts to obtain a place in the competition. Neither artist has yet attained that mastery of pencil and pen which counts for much in the winning of this prize. "Sphinx's" detail-drawing is well done, but it is unfortunate in his building, which, though admirable in its design, the execution is limited in architectural interest. The drawings submitted for the Pugin Student-ship show a very high degree of merit. Mr. James Macgregor has won the first place by the excellent quality of his workmanship and full set of drawings. His perspective diagram of the interior of Sherborne Abbey is to be especially commended. Mr. Norman Mackellar shows an excellent drawing of Dunrobin Castle, a most fitting study for a Pugin student, and a proper subject for competition for the Measured Drawings Prize. Mr. W. J. P. Jones submits some excellent drawings, particularly of Stokesay Castle and some foreign subjects. In the choice of the latter he has strayed from the strict conditions of the competition. Mr. Anderson and Mr. Leathart have also been honourably mentioned. The former has worked from Lincoln and Southwell, and the latter very good representations of carved and coloured woodwork. It is regrettable that a student-ship of the importance and value of the Owen Jones Prize should have attracted but two candidates. The competitors have spent too

much time upon very elaborately worked figure painting and facsimile representation, although in doing this they show quite remarkable excellence. Mr. J. B. F. Cowper has deservedly succeeded in winning the Arthur Cotes Prize with a fine collection of sketches and measured drawings, chiefly of Medieval work. The competition generally is weak in its representation of studies in Classical and Renaissance architecture.

THE STUDENTSHIPS AND PRIZES

were then distributed by the President, in accordance with the list published by us a fortnight ago on pp. 118-9.

Sir Henry A. Miers, D.Sc., Principal of the University of London, in proposing a vote of thanks to the President and Mr. Horsley, observed that the President's advice to students was calculated to make a lasting impression for good on their minds. He was glad that Mr. Stokes had called attention to the urgent need for a sound, all-round education for architects. The work was taking measures to provide, in connection with the London University, a very strong and thorough school of architecture, and they hoped to have, in its establishment and organisation, the advice and help of the Royal Institute. Mr. Horsley had given them a very sympathetic and searching criticism of the designs and drawings submitted in the various competitions. The Senate were looking forward to providing an adequate and dignified house for the University, one which would vie with those in other capitals, and he hoped there were those present in that room who would be able to prepare satisfactory designs for such an edifice.

Sir Alfred Keogh, K.C.B., Rector of the Imperial College of Science and Technology, seconded the vote of thanks, remarking that architectural students were greatly benefited by undergoing a sound course of education in scientific and technical subjects than had hitherto been considered necessary by guardians and principals.

In acknowledging the vote of thanks, which was put to the meeting by Mr. Hare and carried by acclamation, the President drily pleaded that his confessions might be accepted without prejudice and not be used in evidence against him on a future occasion.

SMALL SCHOOLS RECENTLY ERECTED IN LEICESTERSHIRE.

These represent a few of the many new schools and enlargements of existing ones recently carried out for the Leicestershire Education Committee: (1) New Junior School at Market Harborough for 150. (2) Mixed School for 140 at Newbold Verdon. (3) Infants' School for 82 at Desford. (4) Handicraft Centre at Shepshed, having a manual training room on the ground floor and a room above. (5 and 6) Enlargements of existing schools at Duntun Bassett and Countesthorpe respectively, the original walls being hatched in. (6) Plan of a new Mixed School at Cosby. The new schools are planned with a view to future extension, and whilst adopting simple and economic methods of construction, an endeavour has been made to impart an individual interest to each structure. The cost averages under £2,000 per head, and the architect is Mr. E. G. Fowler, architect to the Education Committee.

The first end on the site for the Park and Sandy Lane Spinning Company, No. 2 Mill, Royton, was cut on Monday. The mill will be four stories in height, and will contain 97,000 spindles. The builders are Messrs. S. and J. Smethurst, of Rochdale.

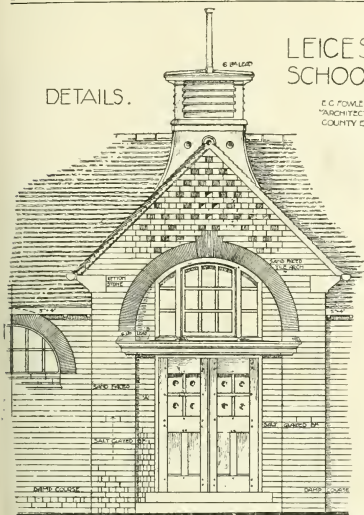
The King Edward Sanatorium for Consumptive Patients at Howick is approaching completion. The mill will be opened in May. Mr. H. Cantley, of Ipswich, is the architect, and Messrs. Catchpole and Sons, of the same town, are the builders. The total cost will be about £15,000.

At Felixstowe, the urban district council have adopted plans by their engineer, Mr. H. Clegg, subject to the approval of the Local Government Board, for doubling the width of about 3½-mile length of the existing concrete-paved promenade and also for laying out the common lands on the sea-front. The sewage-ejector station is also to be extended from Mr. Clegg's plans.

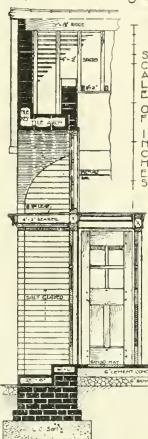
LEICESTERSHIRE SCHOOLS.

E. G. FOWLER,
"ARCHITECT,"
COUNTY OFFICE.

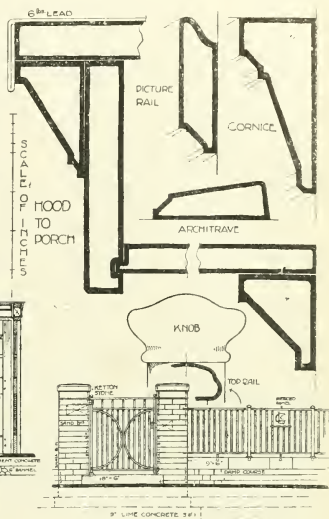
DETAILS.



ELEVATION



SECTION



ELEVATION OF FRONT FENCE

SMALL SCHOOLS RECENTLY ERECTED



1



4



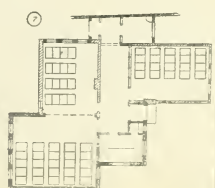
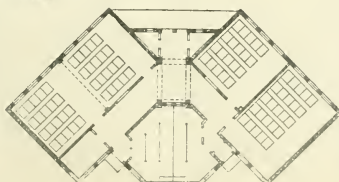
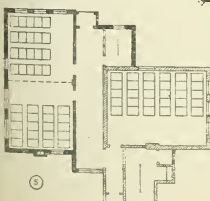
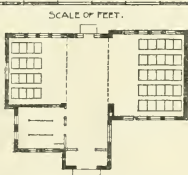
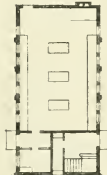
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IN LEICESTERSHIRE.

E. G. FOWLER,
"ARCHITECT,"
COUNTY OFFICE,
LEICESTER.



SCALE OF FEET.

THE SINGLE TAX MOVEMENT.*

By EDWIN SAVILL (Fellow).

In reading a paper on the proposals for the taxation of land values known as the Single Tax Movement, I regret to say that it is necessary to justify myself, because people, even those who should know better, are inclined to dismiss the subject as "absurd," and the project as "impossible." For this purpose I do not think I can do better than read to you a few extracts from the various papers and pamphlets published by the United Committee for the Taxation of Land Values, who have been working quietly for many years, but who now, having obtained a considerable following, both in and out of the House of Commons, are becoming much more active, and encouraged by their temporary success, are working more openly.

[The extracts referred to, are also some from Single Tax literature, were read.]

This means a single universal tax upon all land values, whether covered, undeveloped, or agricultural land. Doubtless you will say that that means the nationalisation of land pure and simple, and I do not think it is denied that is the goal of their ambition; but the subject of land nationalisation is too large a one for me to touch upon to-night, however suitable it might prove for discussion at some future meeting of our members. Still, then, I understand of the committee is to secure an official valuation of all the land throughout the country, distinguishing the "site," or unimproved, value from the total or improved value of each hereditament. This site value is then to form the basis upon which all taxation, local and imperial, is to be assessed. The advantages claimed for this proposal are:

- (1) Taxation of land values, the only just system of rating and taxation.
- (2) The freeing of industry from monopoly and undue burdens of taxation.
- (3) That will give real relief to the rural districts, and working agriculturists from the present excessive burden of rates and taxes.

The subject clearly is one which must be considered from two aspects, the political and the economic. On the former all good citizens should. I think, endeavor to form an unbiased and judicial opinion, considering carefully whether the ownership of land should be looked upon as subject to peculiar circumstances, calling for treatment different to other forms of property. Fortunately, perhaps, this room is not the place to discuss the ethical side of the problem, nor would it be illumined by the special and technical knowledge of the surveyor, and may, therefore, be neglected in our discussion to-night. But the economical aspect is different, and I submit that upon this side of the question no class of the community can throw more light or better deserve a hearing than those who follow our profession. Their training has been directed towards anticipating correctly the influence of various factors upon the value of land, and should their voice, as a public body, be raised against the practicality of the committee's proposals—whatever opinion might be held as to their political disability or the reverse—the nation would, I consider, be ill-advised to adopt them without the clearest proof that the profession was mistaken, and that the proposals were in themselves economically sound. Now, while it is not difficult to produce arguments to refute some of the claims which are put forward by the committee, it is not easy to deal with their main contention that all rates and taxes should be assessed on site values without the help of reliable information as to the unimproved value of the land of this country, which does not at present exist. Here I must admit that I have taken a bold step, and have formed an estimate, not without much thought and weighing in the scales figures, of the site value of all the land in the United Kingdom. My estimate amounts to £3,000,000,000, and it should be remembered that with such colossal figures a hundred millions or so of error may well make comparatively little

difference in the result. The proposals put forward by the committee are two in number, a smaller one for immediate consumption, and a larger as their ultimate goal. Under the first it is proposed to assess on site values all local rates, the Government grants in aid thereof, and a further sum equal to that now brought into the Imperial revenue by the taxes on food, the unit of assessment being the United Kingdom in each case:

| | |
|-------------------|--------------|
| Local rates | £60,000,000 |
| Government grants | 25,000,000 |
| Food taxes | £10,000,000 |
| Total | £100,000,000 |

The more advanced proposal is that of a Single Tax for all purposes, local and Imperial, to be assessed on site values. The amount needed annually for these purposes is about £248,000,000, a sum approximating very closely to the total rateable value of the United Kingdom, estimated as at present on land and buildings. Let us, then, calculate what this would mean on my estimate of site value:

To raise £104,000,000 on an assessment of £3,000,000,000 would need a rate of about 8d. in the £, while 1s. 8d. in the £ would be needed to raise £248,000,000.

To the uninitiated these rates, perhaps, may not appear excessive, just as the undeveloped land duty of 3d. in the £ may have caused them to marvel at the restraint of the Chancellor of the Exchequer. But they have failed to appreciate the true inwardness of assessing an annual tax upon a capital value. The 3d. in the £, which looks so innocuous, is a tax of this kind, and on a 4 per cent. table will be found equal to an income tax of 10d. in the £. Estimate in the same way the 1s. 8d. in the £, and 1s. 8d. an income-tax of 41s. 8d. in the £. And now I should like to consider, with your help, and bearing in mind these figures, how far the land taxers' statements are justified. I will take up as little time as possible, because I think that very often the discussion is the best part of a paper.

(1) "Taxation of land values the only just system of rating and taxation." To quote from "Land Values" of May, 1911: "Direct taxes are of two classes—(1) Taxes that are levied upon men in proportion to their income (the tax on inheritance and death duties, etc.); (2) taxes that are levied upon men in proportion to the benefits received from the public. There should be little difficulty in choosing between these two. The first is a device which is unjust, whilst the second is manifestly fair, and the single tax, falling under this head, is the ideal one. Let it be shown that the value of the services rendered to each individual would be justly measured by a single tax, and we ought to hear no more of the practical doctrine of taxing men in proportion to their wealth." The result of putting all taxation upon the site value of land must necessarily be that only those persons who own or use land would pay taxes. Of course, the advocates of the tax say that everybody must, directly or indirectly, use land, so everyone would have to pay their share, but there are many instances in which the profits are made with very little use of land, and of people with huge incomes owning no land and living in comparatively small houses. Take the case of the big trader who has a small office in the City, who would pay very little in rates compared with the benefits he receives from the protection of his interests by the Army, Navy, and police, and from other national services. For example, a man with, say, £30,000 a year, derived from various interests, foreign and home directorates, etc., occupying a small office in the City, and living in the country in a house with thirty acres of land rated at £400 a year; he would now pay in direct taxes and rates £2,425, while under the Single Tax system he would only have to pay about £250 a year. On the other hand, a man who derives a net income of £30,000 from an agricultural estate, and who would now pay, say, £2,700 a year in taxes and rates, would, under the Single Tax system, be called upon to pay no less than £50,000 a year; but against this it is to be presumed that the

rates now paid by the tenant, say, £6,000 a year, could be passed on to them in additional rent.

(2) "The freeing of industry from monopoly and the undue burdens of taxation." The question of monopoly would more properly come under a paper on land nationalisation. If the land taxers knew the competition there is among landowners to secure a good seeking tenant, they would not talk about "monopoly" under the present system. But they would be able to mention it quite correctly, if and when all the land in the country belonged to the State; when there would be no competition to secure a tenant, and when a seeking tenant would have to accept such terms as were offered him by the one and only landlord to go without land altogether. The question of how other industries would be affected by the suggested change in the method of raising revenue is a difficult one. I think the idea is that if all buildings and improvements were exempt from rating industries would move out into the country where land is cheap, and where, consequently, the tax payable would be small in amount. Bearing upon this point, however, must not be forgotten that many industries own their present premises, and would be heavily penalised in having to pay crushing taxes upon valuable sites which they would be obliged still to occupy, in that they would certainly not be able to sell them. Undoubtedly those industries which were in a position to move would be inclined to do so; but, before moving, they would have to consider not only taxation, but means of transit, market, labour, and other matters. There would in all probability be great changes in our industrial towns. A good deal must depend upon how much land an industry occupies, and the value of that land, but above all upon a point on which the land taxers themselves do not at present seem very clear—namely, whether a revaluation of the land would be made at certain periods, or whether the present valuation would remain the basis of taxation for ever. If the land is not to be revalued, the valuations which are now being made (of which the site value is to be used for assessing the new taxation) would quickly become entirely false, all the conditions under which they had been made being changed the moment the new Act was passed. In spite of this fact the owner would be compelled to go on as long as he was able paying taxes upon the original valuation, arrived at before the great changes had taken place, and notwithstanding the fact that his land had depreciated in value, his tenants departed, and new ones unable to be found. When ruined and unable any longer to pay the taxes his land would presumably pass to the State. Doubtless some owners in districts which are now of little value would presumably score, because they and purchasers from them would only have to pay taxes on a low site value, although owing to capital expended on roads, factories, houses, etc., their land would be worth a far higher sum. On the other hand, if the land is to be revalued at certain periods there would be, I think, a large increase in the amount of tax in the £, owing to the revaluation of the value of the sites being much more rapid than the appreciation in the localities where land is now of little value. As a consequence the industries which had moved into the country would find that, on account of this increase in the amount of the tax on the increased site value of the land they occupied (and they are all supposed to be going to spread themselves out over much more land than they at present occupy), they would be benefited much by the change. I think the position can be summarised in this way. If land is not to be revalued, some factories, small houses, and cottages will occupy larger areas of land, and owing to the low original value of their sites, will pay comparatively low taxes, while in other cases the converse will obtain, certain sites being burdened with taxes, which are so made that they are almost incapable of economic use. If, on the other hand, land is to be revalued, industries will build their work shops and cottages on the smallest possible area of land, because they will fear the increase in the amount of taxes they will have

*Read at the ordinary general meeting of the Surveyors' Institution, Feb. 5, 1912.

*Read before the Society of Architects, Feb. 8, 1912.

cottages can only be built to be productive where the cost of the ground is comparatively low.

3.—THE BLOCK VERSUS THE COTTAGE.

The great question with regard to block dwellings is whether they are more or less healthy than the cottage, and it must be admitted that good health is dependent not on one condition, but on many. Good physique, proper conditions of industrial life, adequate nutrition, proper clothing, all play their part in ministering to the good health of the workman. Important as these are, undoubtedly are, the conditions of the home are of quite equal importance. In the home the children are born and grow by year from youth to maturity. It is in the home that the wife fulfils her domestic duties, and to which the breadwinner returns for food, recreation, and rest. It is therefore of a matter of fundamental importance that the dwellings should be so constructed as to directly minister to the good health alike of father, wife, and children. The primary command of creation was "Let there be light," and it is because the builders of block dwellings in some countries have neglected to obey this command that the block dwellings exercise such a mischievous influence upon the health of the people.

In the New World as well as in the Old, this primary command has not been obeyed. Another point against block dwellings is that they are liable to be overcrowded; this, however, ought never to happen where the superintendent and his assistants keep a sharp look out. Although I am designing many block dwellings, I am not greatly in favour of them, and I were able I would build cottages of the type which I consider a workman's home should be, as described by me later on; but with sites of the cost values of those just referred to, it is manifestly impossible to consider the question of cottages thereon, even when the small return of 2½ per cent. is taken into account. I agree with Mr. Henry Aldridge, the energetic secretary of the National Housing Council in London, when he says that a workman's home should be: "To begin with, every normal, healthy dwelling for a family should possess at least three bedrooms—one bedroom for the parents and two bedrooms to enable the children to be separated in the years of youth and adolescence. The delicacy and privacy of individual life in the years of youth form one of the most important conditions for physical improvement, and this is the answer to the question with workmen I find that no point is more popular than that of the need for proper bedroom accommodation. Each normal dwelling for a workman's family should also have a good living room—spacious, well-lighted, bright, and clean. It should be the brightest and most cheerful room in the house. It has to serve as the workroom for the wife, the playroom for the children, and the dining room for the whole family. Connected with this room there should be a scullery, in which the rougher domestic work of the household can be performed. Each dwelling should also be provided with a bath, and the practice of placing this real necessity of modern healthy life in the scullery may be recommended where the cost of a separate bathroom cannot be afforded. With regard to the bathroom, the best room in the house there is much difference of opinion amongst housing reformers in Great Britain. Personally, I am a strong advocate of the parlour or best room. I regard the quiet but strong desire of the workman's wife to have one good room for pleasure as a healthy desire of great social value. The housewife realises that if only she possesses a best room of this kind, domestic cleanliness in the standard of comfort has been secured. The room may be little else than a "cemetery of wax flowers," but it is a proof of the ability of the family to have a separate room for social life as distinct from workaday life. This, then, is the standard of a normal, healthy home for a workman's family: three bedrooms, a large living room, a scullery and bath, and what we call the parlour. There is one external feature of the home which should also be clearly stated—viz., the need for garden space. No workman's home can be regarded as properly equipped unless

it has a garden, however small. On the broad question of taking all things into consideration, I think all will agree with me that the cottage comes out best and wins the case, and should be built wherever possible; of course, every acre being had and due account being taken of the situation of the building and the cost of the land.

4.—THE COTTAGE: WHETHER DETACHED, SEMI-DETACHED, OR IN ROWS.

Whether the cottage should be detached, semi-detached, or in rows depends very largely upon the number it is desired to place upon any given plot of land, and makes a considerable difference in the number to be so placed, because if they are in rows more land is available for building—and the overcrowding of houses is to be deprecated; but even if they are so placed it is far better, in my opinion, to provide a small yard, then the back way, and beyond that the garden, and to say, every four or six houses run a passage-way from back to front, with rooms over, to connect up the back way as much and as often as possible, and prevent it becoming the nuisance it sometimes does; but if the number of houses to be erected to the acre is, generally speaking, says Mr. Raymond Lawton, reduced to anything like fifteen, terrace houses with back passages will be found to be a more expensive method of development than with passages between the houses. Is it better, however, to build houses semi-detached? Here, again, the question of money comes in, for it is impossible to build in this manner as cheaply as terrace houses; there are three main walls to be erected to start with, instead of two. The objectionable features, however, which may arise in connection with the back way in the terrace house are done away with, and every house has its garden directly attached thereto. Detached houses are much better, but again the cost is still more. Looking at the matter dispassionately in all its lights, I consider that the best way of arranging houses economically is semi-detached; but the passage between the houses should not be less than 4 ft. wide, and can be used jointly by the occupants on either side; this method does away with the obnoxious back passage, and is the easiest solution of that very irritating by-law regarding back ways which at one time every local authority sought and fought for, until they found out the cost of upkeep, lighting, etc., and which they would now be glad to be rid of.

5.—NUMBER OF HOUSES TO BE BUILT TO THE ACRE.

This is a very vexed question, and one which has already caused much heart-burning—at present, in certain districts, as many as thirty to thirty-five, and even more, houses are built on an average upon every acre of ground; this, of course, means overcrowding and discomfort, terrace houses and practically no gardens; but thirteen to the acre is a very usual number, and is good. The Birmingham Corporation, in their town-planning scheme for East Birmingham, have fixed the limit at ten per gross acre, with a density rate of twenty per gross acre. This has, however, not caused satisfaction, and the Birmingham Corporation are grumbling. Personally, I think, a good all-round average is thirteen to fourteen per gross acre, and with this number it is possible to give plenty of garden ground, as will be seen from my first scheme for the Birmingham site above spoken of, and the one now suggested to be carried out. Referring again to a report by Mr. Raymond Unwin of the effect of limiting the number of houses to the acre, he says, "For a moment let us confine our attention to land worth £300 per acre, which will be found to be a fair average for undeveloped land purchased in large quantities on the outskirts of existing towns. The two diagrams give in a graphic form the main fact that the advantage of increasing the number of houses to the acre is very much smaller than would at first be supposed even if measured solely by the money result per plot, while if anything is allowed for the size of the plot it becomes evident that the crowding of large numbers of houses upon the land is really a most uneconomical pro-

ceeding. The additional cost of road required to provide the extra frontage for the added number of houses, increases the total cost of development so rapidly that raising the number of houses from 9.6 per acre gross to 25 per acre only reduces the cost of land and roads per house from £68 to £40, while the size of the plot which each house enjoys is reduced from 423 yards to 127 yards. To put it in another way, with 25 houses to the acre, the tenant pays 7½d. per week for 127 yards. With 9.6 houses to the acre, if the tenant paid 15d. per week, he could have 423 yards for his plot, and the landlord would make the same profit upon his land, because while the effect of reducing the number of houses to the acre from 25 to 9.6 is to increase the cost per plot by 68 per cent., its effect also is to increase the area of the plot by 333 per cent. If we take it still another way from the tenant's point of view, with 9.6 houses to the acre he pays at the rate of £778 per acre for the net area of his plot, which is 3s. 2½d. per yard, while with 25 houses to the acre he pays £1,515 per acre for the net area of his plot, or 6s. 3½d. per yard.

6.—HOW TO BUILD HOUSES CHEAPLY.

Under the Housing and Town-Planning Act and the various small holders and other Acts, great incentive will be given to people to build houses for themselves, either through some of the approved societies or by borrowing the money in other ways with the aid of the Acts. I do not propose to go into the many methods in which this can be done, but will only say that I consider the best way to build cheaply is for the client to employ a thoroughly practical and responsible architect, not a faddist or dreamer after the impossible, but one who understands his subject and can give the best results for the least money, due care being laid to all the conditions obtainable. Let me conclude by saying that the difficulties thus briefly stated are great ones beyond question; but there are not wanting signs of a great revival of interest in the housing conditions under which the working-class families of every country live day by day, and year by year. These families build our houses, make our streets, weave our clothing, grow our food, and make life easy and pleasant in a hundred ways. In common fairness those whose conditions of life are less onerous and more pleasant should strive earnestly to improve the home conditions of even the poorest labourer. Certainly, no finer goal of effort can be sought than that of giving men not only "more room to live" but "more room to live happily, wisely, and well."

The death is announced at the age of 60 of Mr. J. B. Janssens, architect, of Brussels, and director of works of the commune of Molenbeek.

With a view to extend the premises and building of Berwick Workhouse, and the new future in order to satisfy the requirements of the Local Government Board, Berwick Board of Guardians have agreed to purchase from Berwick Corporation land and premises situated adjoining the Workhouse, the price being £500.

Corrosion tests of alloys are being made in connection with the construction of the Catskill aqueduct, and were last reported upon in the annual report of the board of water supply of New York City. In 1908 specimens of six representative bronzes were partially embedded in concrete cubes and placed in Egeus Creek. In 1910, after an exposure of two years two months they were examined and weighed. The average thickness of metal lost from the surface of the most corrosible specimen was 0.000248in., and the average loss from all specimens was 0.000136in. The tests are being continued.

The court-house in Chequers-street, St. Albans, which is to be used by the Hertfordshire County Council and the corporation of the city, although it has been enlarged and rearranged of late years, is again inadequate for its purposes. The county council has under consideration proposals for alteration, and an estimated cost of £3,000, while a larger scheme is advocated by a sub-committee, who report in favour of entire reconstruction at an outlay of from £25,000 to £30,000. It is suggested that this is the only satisfactory course to pursue; but at present the sanction of the finance committee has not been given to the more ambitious plan.

CURRENTE CALAMO.

The attendance of senior members and of visitors at the Conduit-street galleries on Monday evening was one of the smallest that we have seen on the occasion of a prize distribution for many years past. This, doubtless, was due to the weather; but the students mustered in good force and clamorously welcomed their successful brethren with their accustomed good-will. The President, in a very brief and unconventional address, told the story of his progress to the presidential chairs of the Association and Royal Institute. As Gothic work is at a discount at the moment no student is likely to repeat Mr. Stokes's mistake and prepare to be an architect by building rabbit-hutches and drawing tracery windows. In Mr. Horsley's scholarly and well-reasoned criticism of the designs, commendation and blame were carefully balanced, and no student could have heard it without picking up valuable hints for future work. Some of us listened eagerly during the distribution of studentships and prizes for a repetition of the protest against awards to designs prepared in schools and colleges of art and architecture; but possibly the President had been able, at the private interview proffered, to allay the feelings of the student who disturbed the calm of the last meeting. There is, after all, something to be said from the objector's point of view; but it is not easy to suggest a remedy for an obvious injustice to isolated and provincial students. The Institute competitions are announced many months in advance, and the masters of schools of architecture and colleges of art naturally set in their classes identical or similar problems and criticise the work of their men. Doubtless the architect's assistant in a country town, who works alone but aspires to carry off a studentship, is discouraged.

By the nomination of Mr. Basil Champneys as the Royal Gold Medalist for the year, the Institute Council, as on the last occasion when the blue riband was awarded to an English architect, have gone outside the ranks of the Institute to do honour to an eminent practitioner. Mr. Champneys, like Mr. T. G. Jackson, has stood aloof from all professional bodies. The son of a former Dean of Lichfield, he is in his seventieth year, and has been in independent practice for five-and-forty years. His chief work is the Rylands Library at Manchester, and he has planned Somerville and Ruskin colleges, added new buildings to Merton, New, and Oriel colleges at Oxford, and to Winchester College, while at Cambridge Newnham College, the Divinity and Literary schools, and the Archaeological Museum have been built from his designs, and his schools and churches are scattered all over the land. All his works exhibit a freshness and originality and a cleverness in composition that stamp them with character and individuality.

Is it a sign of the times when the Surveyors' Institution is invited to brace up its energies against the Single Tax, as by the author of the paper read last Monday night, and given in another page? The Single Tax seems gaining ground in the Britain beyond the seas. Johannesburg has lately got a Single Tax majority, one enthusiastic Single Taxer having run away with the Labour party and converted them. In Canada the idea is

apparently gaining ground. Only lately the Attorney-General of Alberta introduced into the Provincial Legislature a Bill to compel all new towns in that growing province to levy rates only on land and on local monopolies held by private owners. In the case of towns already established it is provided that a 60 per cent. assessment may be levied against buildings; but that this must be reduced at a rate of not less than 15 per cent. of the actual value each year. This, apparently, would mean that every town and municipality in Alberta must be on the Single Tax basis within four years.

At a meeting of the Institution of Automobile Engineers last week, a very sensible departure with regard to papers was announced—viz., that in future they are to be published in the technical Press a week in advance, and only a short résumé given at the meeting. Thus the full time of the meetings will be devoted to the discussion. This plan has long been in vogue on the other side of the Atlantic. The American Institution of Civil Engineers, in addition, invites written contributions to the discussion from members at a distance. We almost wonder sometimes that men of eminence here can be induced to contribute papers at all, considering the poor attendances they get, and that some societies, the R.I.B.A. included, do all in their power to limit publication.

We observe a meeting is to be held to-night, at the Royal Society of British Artists, to found yet another Society, which is to charge itself with the task of looking after the practical improvement and artistic development of London. As Sir Aston Webb appears to be one of the moving spirits, we may take it for granted that the methods and objects of the proposed new association will at least be bonâ fide. How far this latest addition to the long list of organisations which, in a more or less amateur fashion, undertake to enlist public interest in public matters of general concern, is likely to fulfil its purpose, we must wait to see. Many societies of the kind seem to us more or less the outcome of conscience pricks, goading those of us to action who neglect our obvious duties as citizens, or as members of bodies whose first concern should be the insistence on, and watchful vigilance with regard to, the public control of things we do nothing to better in the right way, but expect somehow to improve by joining ourselves to enthusiastic outsiders largely made up of cranks and visionaries.

For ourselves, we should expect to accomplish more by bringing the impetus of the R.I.B.A. to bear on the London County Council, the City Corporation, and the various smaller or greater glorified vestries, than by any number of outside combinations of painters, sculptors, architects, and sociologists, tempered by City magnates, great land owners, and economists." Thanks mainly to Mr. J. W. Simpson, the Institute Conference on Town Planning in 1910 did more to enlighten the general public with regard to the possibilities of the Act, and to awaken genuine interest here and abroad, than all the twopenny-halfpenny outside associations, and organs, and amateurs, whose feeble imitations of the splendid work of the Institute has since bored most people. As far as architects are concerned, the very best work the proposed new society can accomplish can be infinitely better done by the

Institute. It should be the same with the representative bodies of the other arts. If any architect or artist thinks it is his duty, then it is his first duty to hammer away, and to get his own proper organisation till it is, and to get to squander force on the generation and the bringing of feeble dilettante societies, whose his own vigour will be wasted and his ideas misinterpreted and misconstrued by the amiable but not very wise people who merely make up these little mutual admiration cliques of fussy people, generally misused sooner or later by shrewd wire-pullers with axes of their own to grind.

The activities of the Garden Cities and Town-Planning Association are many! At the annual meeting on Monday, Mr. Justice Neville, the president, told his hearers that the association "stood higher" abroad than here. It has been "giving advice" at Budapest, Australia, Newfoundland, many parts of the United States, Nicaragua, Cape Colony, and elsewhere, and in spite of all this "work in the world" the subscription list remains as it was two years ago. Possibly results achieved here—even at Letchworth and Gidea Park—have not sufficiently enthused home admirers? However—so Mr. Cecil Harnsworth told the meeting—the Federal Government of Australia, in want of good ideas and "good plans" for its new capital, has "sent to the Garden City." So all will be right there even if mere architects decline to compete. "A former Letchworth man" is also in charge of the town planning of Winnipeg. Perhaps another is to "improve London" on the lines of Professor S. D. Ad-head's rather drastic paper which was read at the meeting. Professor Adhead has his eye on the Mall, where he wants more sculpture and, "perhaps," its boundaries on the parks "converted into sculptural ways." We venture to hope it is all only "perhaps." As for the tube railways and bridge demolition, Professor Adhead wants—well, they have all yet to be discussed at a future meeting. For the present, as we have said, the Garden City people doubtless have their hands full!

The conversion of empty churches into cinematograph theatres—"transformations of temples of worship into temples of mirth," as the local journal which records the latest instance calls it, proceeds apace. Trinity Chapel, Mare-street, Hackney, sometime known as "St. Thomas's Church," now the "Empress Electric Theatre," will doubtless satisfy "the need for recreation in these strenuous times, which is growing more and more acute"; but what the sterner Puritan preachers, Philip Nye and Adoniram Byfield, who filled the pulpit of the old Presbyterian Meeting-House of which it was the successor, would have said we do not know. However, the Mayor of Hackney was present at the opening luncheon last week. "Whilst some people might deplore the conversion of the building into a picture-palace, he was sure such places, if they did not do as much good, did a great deal of good. They afforded possibilities for education as well as amusement, and it could not be conceived that public bodies could divorce themselves from enterprises of that sort without feeling that they had taken upon themselves a great responsibility." Possibly his worship had been reading the recent Episcopal fulminations against Sunday amusements, and was not quite sure, after all, that the fact that corporations have no souls to be damned,

* We gave a portrait of Mr. Basil Champneys, B.A., in our issue of Feb. 7, 1909.

guaranteed the immunity of their individual members!

A store clerk at Woolwich Free Ferry has invented an improved hair-comb. Being an official of the London County Council, he has to get the sanction of the municipality before he can patent his invention. In this matter the chief engineer of the depot reports that the inventor has had facilities in originating, working out, and perfecting the invention by reason of his official position, though exactly how a Free Ferry store clerk can in the course of his employment find facilities for working out and perfecting a hair-comb is not easily conceived. Still, it is clearly possible for hair-combs to be improved, so the County Council is going to permit its inventive employee to patent his idea, but on the understanding that the Council (one and indivisible) shall enjoy the full benefits of the invention without any payment for royalty. The *Manchester Guardian* suggests that the County Council wants to get a full benefit of the improved hair-comb without any charge to the ratepayers. Whether our contemporary means for the behoof of some of its unkept members, or for wholesale supply presently to the children of the Council schools, we do not know!

The annual visit of the Reeve of Lambourne to Godolphin Manor House, near Perranzabuloe, in the early morning hours of Candlemas Day, was repeated at 6.30 a.m. last Friday, with all strict adherence to long-prescribed ceremony. When the Reeve, in the person of Mr. A. J. Spilsbury, of Clowance, arrived last Friday morning, the place echoed with the screeches of owls and notes of blackbirds. Standing outside the heavy old entrance door, Mr. Spilsbury repeatedly rapped it with a stick, saying thrice, "O ye! O ye! O ye!" here came I, the Reeve of the Manor of Lambourne, to demand my lord's dues, which are three groats and a penny in money, a loaf, a cheese, and a collar of brawn, and a jack of the best ale in the house. God gave the King and the lord of the manor." This ceremony was repeated at the inner door of the quadrangle, and finally at the table in the hall. The Reeve received the money, and the rest of his demands were satisfied by the provision of a sumptuous breakfast, which was partaken of by about eighty persons.

The origin of the observance, which is said to date back 600 years, is traced to the sporting proclivities of our West of England forebears, who, born before Derby days and football competitions, had to wager away their estates as best they could. So, we are told, an ancestor of the Rev. St. A. H. Milesworth St. Aubyn, J. P., of Clowance, and one of the Godolphins, respectively, wagered the estates of Godolphin and Lambourne, Perranzabuloe, on a snail race across a table. After the snails had proceeded some distance, Godolphin unwisely pricked his snail, hoping thereby it would crawl faster; but, instead of that, it withdrew its head and refused to move until St. Aubyn's snail had accomplished its journey. Ever since those days the custom of Lambourne's Reeve annually visiting Godolphin and making certain demands has been kept up, to show that Mr. St. Aubyn has a lien on the Godolphin estate. Owned by the Duke of Leeds, and tenanted by Mr. W. Terice Richards, the old hall is at present used as a farmhouse, and is annually largely visited by tourists and others.

THE BAROQUE ARCHITECTURE OF ITALY.

Design, as the present mode of architectural expression, seems to be tending towards the flashy eclecticism of enrichment and irrepressible eccentricity hitherto associated with the elegance of the Rococo, to the detriment of the calm and comely beauty of the cultured Classic, while the revivalists of so-called "Late Renaissance" till lately held up as the goal for modern development in artistic building. Apart from such a standard, the audacity of mere "fancy brands" in architecture, aided as they may be by the facilities of graphic draughtsmanship, run riot in the hope of insuring novelty, and thereby attracting likely clients who favour notoriety. The demand obviously creates the supply; and if we are to give place to the Baroque, with all its voluptuous romance, it would be better by far to accept the lead of such masters as Michelangelo, Correggio, Sansovino, and Vignola, whose love of the stupendous in composition first made its claims felt in the 16th century. In this sense, and as an object-lesson, too, of what to avoid in the works of later men, we can but accord a welcome to the handsome volume of excellent photographs just published by Mr. William Heinemann, with an able introduction from the erudite pen of Sig. Corrado Ricci, Director-General of Fine Arts and Antiquities of Italy.* He points out that Baroque art, as a very gifted autocrat, was full of talent, fire, and resource; but the equilibrium of it all broke down, though the original intention artistically was sincere. He urges that it would be unjust to insist that the artists of Italy, who vied with each other in the exaggeration of their principles, had no other than the needs of factitious enthusiasm only that they might have the pleasure of satisfaction in a wanton way. Lomazzo denounced exaggeration; Vignola in theory was attached to the antique; Scamozzi adured his pupils to employ restraint; but notwithstanding these admonitions, actual examples in practice set by such leaders of style as the Fontanas, and the degradation exhibited by the architecture of Bernardo Buontalenti, whose bottom limit was finally reached as illustrated by his Grotto in the mane di Bobbio, Florence (1570), not to mention the stucco decoration by Giacomo Serpotta and his pupils (1717) in the Oratorio di Santa Cita, Palermo, or much earlier still in date, the barbarisms of Federico Zuccari in the house known by his name in Rome (1590).

It has been argued that the satiety engendered by the abuse of prevailing forms originated new manifestations while progress was made imperative—hence the apogee in the 17th century of the so-called eruption of the Baroque, the irregular play of the Portico Latin Verruca—a wart—a befitting term for the pretentious and eccentric vogue prevalent in Italy from 1580 to 1760.

The salons of palaces or the big theatre designs, say of the Bibiena, with their overloading of consoles, balustrades, and crushingly elaborated ceilings, no doubt, to be judged rightly, should be associated in the mind, as they were actually, with a repellent public, frocked in damasks, jabots, laces, embroidered ribbons, flowing wigs, and rouged complexions, capped with feathered beads. Contemporary dress ill befits the bizarre of this sort now; but then all was of a piece in the society which produced these buildings and their style. Historically a right appreciation can only be thus insured.

The cupola of St. Peter's at Rome, by Michelangelo in 1547, was the first and most powerful affirmation of this enfranchisement and a liberation from the beneficent weariness of the rules established at the Renaissance. Heretofore bell-friezes became less imposing, and hundreds of domes more or less resembling their majestic mother were erected; but the genre of Baroque art should not be confounded with that of Michelangelo and the *epigoni* of the Renaissance. The

Baroque in France coincided with Louis XIV., and the Rococo style, to be exact, is attributed to Louis XV. Baroque had triumphed in Rome long prior to the yielding which followed to the puerile but graceful forms of the Rococo, which gradually travelled by way of Piedmont and Lombardy, and went from North to Southern Italy. Twentieth-century work in England seems to be emulating details such as those of the Palazzo Trivulzio, Milan; Palazzo del Grillo, Rome; and Palazzo Raggio-Podesta, Genoa, from whence Filippo Parodi's Grotto has furnished precise models for fashionable architects' civic buildings here. Bartolomeo Bianco's vestibule and staircase to the Genoa University (1628), the stucco staircase at the Palazzo Contarini, now Pfanner, the colonnade by Francesco Borromini, Palazzo Spada, Rome (1632), and the earlier courtyard by Martino Longhi the Elder, of the Borgheze Palace, Rome, if familiar, are at best purer and more worthy examples to import, like the Municipio Palazzo at Milan, by Galeazzo Alessi (1558-60).

All of these and very many more are exceedingly well represented in Sig. Ricci's volume, and those who would add some capital and handy a book on the Baroque to their studio or workshop library, in sculpture as well as of the mistress art, will not fail to appreciate the enterprise of Mr. Heinemann, who has thus placed the latest collection of the kind so excellently before the architect and designer.

POMPEIAN DECORATIONS.*

We heartily congratulate author and publisher alike on the production of this handsome and extremely useful volume. The comparatively few who know the beauty of the gorgeous colouring of the mural decorations at Pompeii are well aware that no book in existence has reproduced them with even approximate fidelity. Rare and high-priced volumes have appeared, illustrated by chromo-lithography, but the limited demand has not encouraged publishers, nor have the results induced purchasers to a sufficiently remunerative extent. Thanks to the three-colour photographic process, and to Mr. Briggs's discriminative selection and careful copying, Mr. Batsford has been able to produce this excellent series of sixteen coloured plates of friezes, ceilings, walls, shrines, and mosaics, and eleven half-tones of other subjects, such as marble friezes, tombs, tables, etc. Each plate is accompanied by a descriptive and explanatory note, and an introductory sketch of the history of Pompeii and its decorative arts up to the date of its final destruction in A.D. 79.

The publication is timely, because the present fashion, which favours the Græco-Roman style and the archaic Greek forms, undoubtedly renders the study of examples like those given necessary by architects and decorators. Few will suggest, of course, that inspiration should be sought from the later examples, or that the most of the wall decorations belong, remarkable as their execution and facility of expression is; but the dexterity with which the artistic juxtaposition of tones and shades is managed is full of instruction for us, as, no less, is the utter absence of laborious striving for relief, and attempts at illusory detachment from the background. Perhaps in the three earlier periods, the second and third the Architectural and the Ornate periods, as they have been termed—there is more to be profitably studied; nevertheless, few will regret that Mr. Briggs has not limited his reproductions thereto, and, almost perfect as the coloured plates are, all will be grateful for such half-tones as that of the console of the table found in the house of Cornelius Rufus, with its really fine design and delicate carving.

As such in regard to the practically fresh ground covered by the enterprise with which Mr. Briggs's work has been seconded, his book is likely to be one of the most successful and sought-for publications of its character and date. The production is in every way most creditable and satisfactory.

* Baroque Architecture and Sculpture in Italy. By (CORRADO RICCI). London. William Heinemann, 1912.

* Pompeian Decorations. By R. A. RUGGOS, F.R.I.B.A. London: B. T. Batsford, 1912.

BUILDERS' OBJECTIONS TO FOURTEEN-INCH WALLS.

In the Gateshead Town Hall an inquiry was held on Tuesday on behalf of the Local Government Board, by Mr. W. H. Collin and Dr. R. W. Johnstone, under the Housing and Town Planning Act, 1909, into complaints which had been made that the erection of dwellings for the working-classes within the borough was unreasonably impeded in consequence of a by-law which required to structure of the walls of domestic buildings.

Mr. Swinburne, the town clerk, appeared to defend the retention of the present by-law, which demands 14in. thick walls, and Mr. J. A. Dixon represented complainants (mainly builders), who desired the right to build houses with 11in. walls.

The application was in respect to an uncompleted by-law made in 1880, the present by-law for the building of new streets and buildings having been passed in October, 1911.

For the complainants, Mr. Dixon said that they had several reasons for asking to be allowed to build 11in. hollow walls in working-class houses. In the first place, it meant less cost of building, and they estimated that on a house costing £500 they could save £15 to £20 by the use of the 11in. hollow walls. It also gave more floor space, the temperature was more uniform, and the house was drier. The model by-laws permitted 11in. hollow walls, and they were also allowed by the town councils of Newcastle, Chester-le-Street, and Felling.

A number of builders attended and gave evidence for the complainants.

The borough surveyor, Mr. Pattinson, said that hollow walls required much more careful building than solid walls, and it was essential that the jointing should be good. The builders that morning had contended that 14in. walls tended to dampness. He did not know there were so many damp houses in the town. He should say that all of the dampness arose from bad jointing. In the hollow walls the heavy rains drove into the cavity. In Gateshead they had had for thirty years a by-law allowing 10in. hollow walls, but builders had not availed themselves of it. Cavity walls were extremely difficult to inspect, and there was great lack of stability. On instances which he had worked out, the only saving in building expenses was £3 1s. 4d. per flat. They had no by-law in Newcastle to permit 11in. cavity walls.

Dr. Thomas Morrison Clayton, the medical officer of health, said that in his opinion hollow walls had many advantages. Such walls were much drier, if properly constructed, so that the moisture could drain off. The dampness within should never exceed the size of dewdrops. They also resulted in cooler houses in summer and warmer in winter. What he would wish to emphasise most was the necessity for a properly constructed damp-proof course.

In reply to a question from one of the inspectors respecting phthisis, the doctor said that as a result of investigations which he was carrying out with Mr. Thomas Oliver, an undoubted decrease in fatal cases of phthisis had given way to an increase in fatal cases of bronchitis and pneumonia.

At a special meeting of the Chester-le-Street Rural District Council held on Friday, out of 91 candidates, Mr. E. Graham, of Jarrold, was appointed assistant surveyor and draughtsman.

The Great Western Railway Co. are proposing to divert the Wood Lane line, ten miles long, for the construction of the recently authorised Exaling and Shepherd's Bush Railway, and the London County Council has therefore agreed to do the train-lanes at a cost of £4,500, a sum which will be ultimately recouped by the railway company.

At Tunbridge Wells, the corner hostelry known as the Railway Bell has been demolished to make way for a new red-brick building uniting the drapers' premises of Messrs. Weekes in Mount Pleasant and Grove Hill-road. The new building has been erected from designs by Mr. Egbert Cronk, of Tunbridge Wells, Messrs. Strange and Sons of that town being the contractors.

OBITUARY.

We regret to announce the very sudden death, in his eightieth year, of Mr. Charles Smith, J.P., F.R.I.B.A., head of the firm of Messrs. Charles Smith and Son, of Friar-street, Reading. Mr. Smith, who was a senior magistrate for the borough, died with tragic suddenness on Tuesday morning, when about to take his seat on the Bench at the local police-court. Mr. Smith was ex-mayor of the borough, ex-chairman of the local Brewster Society, an ardent Liberal and Non-conformist, and a prominent Freemason. He joined the Royal Institute of British Architects as an Associate in 1854, and had been a Fellow since 1870.

Building Intelligence.

BRISTOL.—Messrs. H. J. Packer and Co., Ltd., chocolate manufacturers, are building at Greenbank a workmen's hostel. The exterior is of red brick with a tiled roof, and the woodwork is to be painted white. The building is divided into two stories. The lower one contains a refreshment-room, with offices adjoining; here also is a billiard-room, and near at hand are a ladies' room and card, chess, and committee-rooms. The second story is wholly taken up by a concert-hall and the rooms connected therewith. The building is to be erected from designs furnished by Messrs. W. C. Pudding and R. C. James, of Nicholas-street, Bristol, whose plans were chosen in an open competition.

CORRIS.—A public institute is being built in the picturesque village of Corris, Merionethshire, at the sole expense of Mr. Howell J. Williams, J.P., L.C.C., the well-known London builder. The style of the institute is half-timber, local stone being used for the walls. The architect is Mr. D. O. M. Roberts, M.S.A., of the firm of O. M. Roberts and Son, Portmadoc, and the contractor is Mr. J. H. Roberts, Pwllheli.

DAWDON.—The new church of St. Hild and St. Helen, erected at Dawdon, Seaham Harbour, will be consecrated to-morrow (Saturday) by the Bishop of Durham. The church has been built at a cost of about £6,500. The building is Romanesque in style, and has been constructed of red Lincolnshire bricks, with a sparing use of red stone for dressings. Accommodation is provided for 620 worshippers. The work has been carried out by Messrs. John Clark and Sons, of New Seaham, with Mr. A. Gordon as clerk of works, from the designs of the late Mr. C. Hodgson Fowler, M.S.A., under the supervision of his successor, Mr. W. H. Wood, F.R.I.B.A., of Durham and Newcastle.

EDINBURGH.—The Edinburgh Nursing Home Trustees propose to convert three adjoining houses in Chalmers-street, Edinburgh, into a nursing home. The adopted plans for the reconstruction of the property were prepared by Mr. T. D. Rhind, architect. Rooms for patients to the number of about fifty are arranged on three floors, served by a bed-lift, which rises from the basement throughout the building. Twelve of the rooms are set aside for single patients. There is also a nursery for children. Service kitchens are provided on each floor, which are in communication with the general kitchen in the basement.—The Ice Rink in the Haymarket was opened by Lord Balfour of Burleigh on Saturday last. The hall has an internal measurement of 220ft. in length, with a breadth of 120ft., and a height to the roof, which forms an elliptical arch, of 38ft. The ceiling is of plaster, and is divided by bands into seven bays, in the centre of each of which is a ventilator grill. The installation of freezing machinery consists of ammonia compressors with brine circulation through continuous lines of steel tubing laid on the insulated floor of the rink. There will be on the floor a sheet of ice of from 5in. to 6in. in thickness. The construction of the rink and the provision of the machinery have been carried

out by Messrs. W. M. Andersson and Co., engineers, Glasgow. The cost of the building and machinery has been £18,000.

LEISTON.—A new elementary school has been built at Leiston adjoining the Higher School. The new school, which is of red brick, with sand-faced tile roof, consists of seven classrooms, accommodating 360 children, with assembly-hall, 40ft. by 20ft. 6in. The plans were prepared and the erection of the building superintended by the architect to the building committee, Mr. J. Webb. The contractor for the building, which has cost about £3,000, was Mr. A. J. Gibbons, Crowfield.

OXFORD.—The foundation-stones of the new buildings of Ruskin College were laid yesterday (Thursday) by Mr. Sydney Buxton, M.P. Mr. C. W. Bowerman, M.P., Chairman of the College Committee, Mrs. Grafflin, and Miss M. P. Giles. The college has received promises of further donations amounting to nearly £1,500, but a total of £4,000 is still needed. The buildings will be of brick with stone facings, and the frontage to Walton-street will be of a simple character, with a main entrance gateway. There will be a hall, to be known as the Buxton Memorial Hall, in memory of the late Mr. C. S. Buxton, formerly vice-principal of the college, who bequeathed £5,000 to the college; a lecture-room, bed-sitting room accommodation for fifty students, office accommodation, and a vice-principal's residence. Mr. Basil Champneys, B.A., is the architect.

Mr. G. Palmer, assistant to the county surveyor of Middlesex, has been appointed divisional surveyor in No. 1 district by the Cornwall County Council at a salary of £150, rising to £175 per annum.

A gymnasium has been added to the Female Masonic School, at Balls Bridge, Dublin, from plans by Messrs. J. Kaye Parry and Ross, of Dublin. The builders were Messrs. J. and R. Thompson, Ltd., of Fairview.

The city council of Winchester have raised the salary of their sanitary inspector, from £80 to £100 per annum, in consequence of the additional duties placed upon him under the Housing and Town Planning Act.

The Hendon Urban District Council have decided to erect a fire-station on a site adjoining the municipal offices at a cost of about £6,000, the selected design being that of Mr. H. A. Welch, Architect, of Golder's Green.

A Masonic lodge is to be erected at Penryn. The floor will be in reinforced concrete, on which will be laid wood blocks or composition. In addition to the lodge-room proper, which is on the first floor, and will have the usual Masonic fittings, a smoking-hall is to be provided, with waiting-rooms and lavatories attached. The architect is Mr. J. P. Jenkins, 15, Parade-chambers, East-parade, Sheffield.

The preservation works of Winchester Cathedral, which have been for many years in progress under Mr. T. G. Jackson's supervision, will be completed at or soon after Easter. Bankruptcy services are to begin on July 14, and to continue for the following seven days. The works have cost altogether £112,950, of which £3,000 remains to be raised. The contractors have been Messrs. Thompson and Son, of Peterborough.

At a meeting of the Birmingham City Council on Tuesday, it was announced that Mrs. M. E. Rickards had presented to the Art Gallery, in memory of her late husband, Dr. Rickards, two valuable oil paintings—"A Recollection of Venice," by James Holland, and "The Wreck-cliff," by David Cox. The gift also included a silver Queen Anne tankard and a George the Third silver coffee urn. The pictures will form part of the collection which will be hung in the new Art Gallery, which it is hoped will be ready for opening in June.

A power-station has been built at Leith Docks, and the plant installation is now being completed. The station occupies a central position in the docks, has an area of 90ft. by 36ft., and is constructed of red brick with stone facings. The motive power is by a horizontal gas-engine and condensing plant. There are two engines, each of 450H.P., and three gas plants. Both the generators to be used with the two gas-engines are supplied by Messrs. Bruce Peckies and Co., Ltd., Edinburgh. They are gas-engines of 200kw. output, 500 volts, when running at the engine speed of 300 r.p.m.

Our Illustrations.

R.I.B.A. SOANE MEDALLION COMPETITION, 1912. THE TWO PRIZE DESIGNS.

As already explained, the Council, being unable to award the Medallion this year in this competition, no one design being considered equal to the occasion, decided to give it to the two runners of the "Circle City" and "Circle City" for three months' travel. The author of the design marked "Circle City" writes the following note of his scheme:—A building in a park demands an open plan, and, having settled the general lines of this particular scheme, it became clear that some sacrifice of convenience had to be made. Hence the "skying" of the committee rooms and the shape of the service rooms. The main entrance hall gives access to the three main apartments of the building. The large hall is marked, externally, by the dome, and the small hall and banqueting hall by the side wings, which differ in architectural treatment from the main building. The setting of the building in the park was shown on a block plan; the road mentioned in the conditions is considered as the boundary of the park, while the main entrance hall, the park is considered with the large hall. The vista of the subordinate roads and paths terminates in the dome. Mr. William Friskin, now of Kensington, the author of this design, is a past student of the Glasgow School of Architecture.

The second design, here shown, and distinguished by the motto "Auté," is the work of Mr. Piet de Jong, of Leeds, who sends us these particulars of his design:—In laying out this scheme I have endeavoured to produce a plan which, while being symmetrical, would, in the same park, provide "spacious hall, vestibule and corridor space" for the different rooms on each floor without being wasteful. This at once suggested the main entrance-hall with its three distinct entrances placed directly opposite the two staircases, and the foyer which gives access to the guildhall. "The guildhall, to seat 1,200 on the ground floor, with additional accommodation in the galleries," is square on plan, and gives the centres for the axes on which the plan is worked. It is provided with retiring spaces, approached through exits located under the galleries, which are masked by screen walls, thus keeping the hall quite cut off from the corridors. These retiring spaces are open to the corridor, from which are entered the café, lounge, and smoke-room and committee ante-room, which terminate in a small entrance hall, giving access to the building from the gardens in rear through a circular impluvium, on to which the café and lounge also open. The smaller hall, to seat 400, is placed so as to balance the suite of committee rooms, and is entered through its own vestibule and foyer from one end of the main entrance hall. On the first floor, over the entrance hall, is placed the assembly-hall, approached by two large staircases, and elevators, and gives access to the banqueting hall and reception rooms at either end. It is lighted by domes in each of its three bays, and immediately below them are three circular openings in the assembly-hall floor, to light the vestibule on the ground floor. The galleries are also entered from this first floor hall, one direct and the others by way of corridors. The view from the top of the column is intended to disconnect the adjacent gallery from the reception hall. The reception room is provided with an ante-room at each end, one leading to the elliptical lounge and the other acting as a turning chamber from the hall. Like the banqueting hall, it has its own private toilet place on a floor above, entered by a masked door in the ante-room, and of the banqueting hall the service etc., with kitchen, etc., situate on the top floor. With regard to the exterior I have endeavoured to introduce a simple and refined Greek feeling, and to obtain a richness with mass of form and horizontal lines, rather than with elaborate detail. I decided upon a caryatid portico,

the figures being the same height as the interior first-floor columns, and having pedestals corresponding to the height of the ground-floor rooms; thus the divisional line is uniform inside and out. This treatment has been applied consistently throughout, and any deviation from the unbroken horizontal lines has been due to the requirements of the plan. The interior has the same treatment as the exterior, except being somewhat richer in detail. The lay-out of the ground was suggested by a desire to keep the building in perspective while approaching along the main entrance roadways, which are supposed to run along the contour, whereas from the central or lake approach the building would be seen closing the vista through an avenue of trees and at a considerable height above the spectator. Pressure of space obliges us to hold over one detail and first-floor plans of these two designs.)

ROYAL INSTITUTE OF BRITISH ARCHITECTS: PUGIN TRAVELLING STUDENTSHIP PRIZE DRAWINGS, 1912. BY MR. JAMES MACGREGOR.

Last week we gave Sheet No. 1 of this year's Pugin Prize drawings; to-day we devote a double page to Sheet No. 2 of the same set, by Mr. James Macgregor, who has sent us the following descriptive notes:—The south-west corner of the cloisters is all that remains of Muchelney Abbey, founded in the 10th century. Alighting on this cloister, and with an entrance from the stands, what is called the Abbot's House, built towards the end of the 15th century. The western part of the house has suffered from later alterations, and there are indications of other apartments having been on the north side. The eastern wing contains the most interest. It is in two floors: the upper story is reached by a straight flight of stone stairs. In an upper room, called the Abbot's Parour, is a fine stone chimney-piece and an oak window-settle, with linen panels and a traceried cresting to the high back. A design of a crouching lion appears in different parts of the house. The charm and beauty of this exquisite Tudor building, standing amid its "old world" surroundings, must appeal to every lover of the beautiful.—The Gateway at Montacute, shown in the sketch, is the only fragment now left standing of the once great House of the Priory of Montacute. It was built in the first half of the 16th century. On the south front, are two octagonal turrets, the higher one giving access to the room over the gateway. Between them and above the arch is a corbelled-out oriel, enriched with bands of tracery. Over the entrance is a simple fan vault.—The Chain Gate, Wells, was built by Bishop Beekington (1443-1466), in order to protect the vicars from bad weather conditions when passing between their lodgings in the Close and the Cathedral. It was an unusual problem for the Gothic builder to tackle, and well repays the student who gives it a little study. One of the stone chimney-heads from a house in the Close is shown in this plate.—The Priests' House stands on the south-west side of the courtyard of the manor-house of Brympton d'Everey. It is a small building with a central projecting octagonal turret on the courtyard side, containing a stair which gives access from the outside to the upper floor. In one room is an early example of a plaster ceiling and modelled frieze. The roof is original and is of chestnut.—Sketches of the fine Font at Queen Camel and of early Houses at South Petherton and Glastonbury are shown, the last named showing some interesting buttress treatment.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: THE ARTIUR CATES PRIZE DRAWINGS, 1912. BY MR. JAMES PERITIE FRANCIS COWPER.

The subjects on this sketch form one of the series of evidences of study for which this prize was awarded this year to Mr. Cowper, Pugin Student, 1911. The Tower of St. Mary's, Beverley, is a very good perpendicular example, and in the arrangement of the battlement and pinnacles resembles the tower of St. Augustine's, Hedon. The single

belfry window at Beverley is very suitable to the breadth of the tower, while the pair of longer ones at Hedon give a better impression of loftiness. In both these towers the balance of wall-surface and openings is well managed, and the stair-turrets add considerably to their picturesque grouping.—St. Patrick's, Patrington, York, known as the most beautiful cruciform Yorkshire church, remains almost as it was originally finished, and, fortunately, the work has not suffered through restoration. The absence of a clerestory and the steep pitch of the roofs, leading up to the finely proportioned tower and spire, form an unexceptionable and very graceful group. The arcaded octagonal stage connecting the tower and spire is interesting, but the flying buttresses at the angles are too small, are very weak, and look trifling.—Some drawings and description of the beautiful little chapel of Kirkstead, St. Leonards, appeared in the BUILDING NEWS on February 25, 1910. J. B. F. C.

STATUES, MEMORIALS, &c.

THE CENTENARY OF WATERLOO.—The committee formed under the presidency of General Sir John Housie to arrange for the celebration on June 18, 1915, of the centenary of the Battle of Waterloo, has decided on the construction of a mausoleum at Plancenoit or Braine l'Alleud. The memorial, according to the design which is to be submitted for final decision to a council of British, German, Dutch, French, and Belgian artists, will consist of a mass of dark porphyry on which the principal group, carved in white marble, will stand out in relief, with bronze figures round it representing the various nations. All the bones found on the field of battle will be laid within this mausoleum. All questions as to the centenary should be addressed to Mr. Conlon, French secretary of the Belgian Committee, Rue Guillaume de Stree, Ixelles, Brussels; or, if concerned particularly with England, to the delegate for Great Britain, Baron Gaetan du Vriere, 18, Rue de Toulouze, Brussels.

The salary of Mr. Alex. Yuill, gas manager to the Dundee Corporation, has been increased by £50 per annum.

The urban district council of Anfield Plain have approved an estimate of £15,540 for the erection of 90 houses.

Mr. J. T. Blackwell, of Kettering, has been appointed architect by the Northants Education Committee for the special instruction centre at Deoborough.

A sub-committee of the town council of Edinburgh has approved and recommended for adoption plans by the city superintendent of works for a new hall to be erected on the site of Inverly House, Portobello, at an estimated cost of about £29,000.

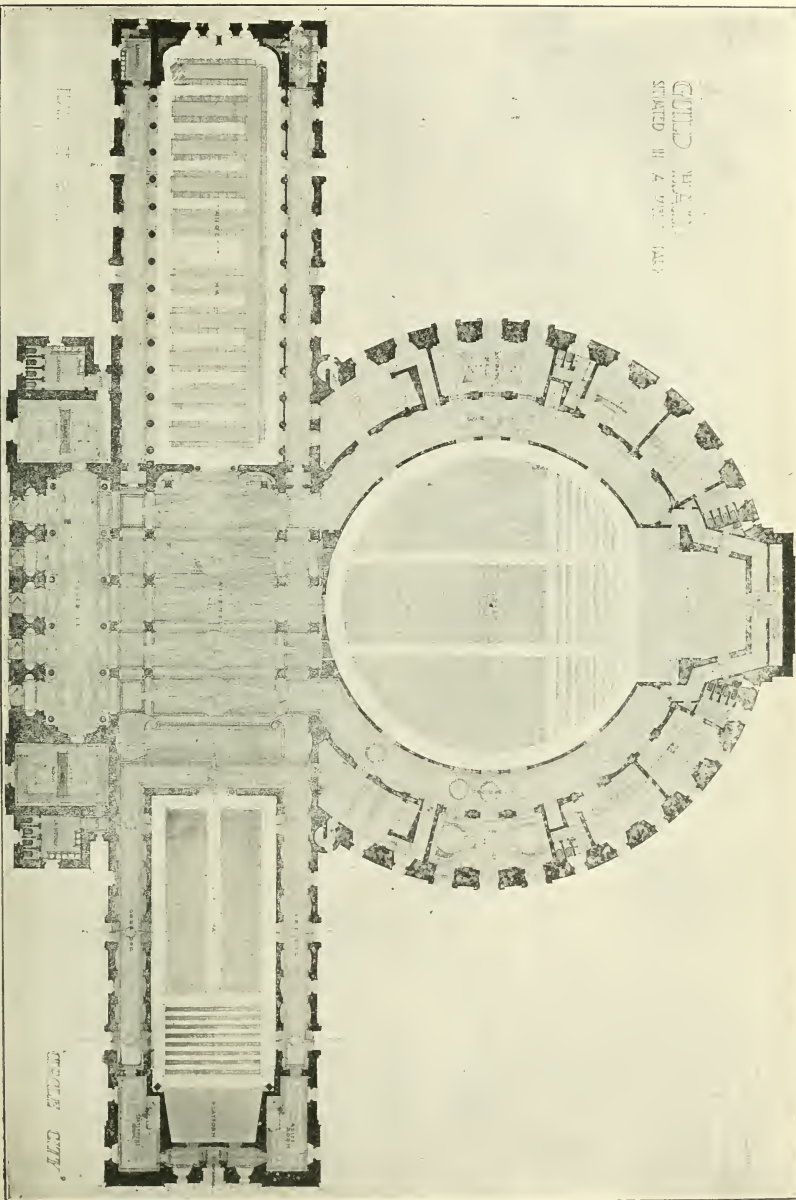
Montrose Harbour Trustees approved unanimously on Monday of a scheme submitted by Mr. J. Hannay Thompson, Dundee Harbour Engineer, for the reconstruction of the fish quay with ferro-concrete and timber fenders at an estimated cost of £47,000.

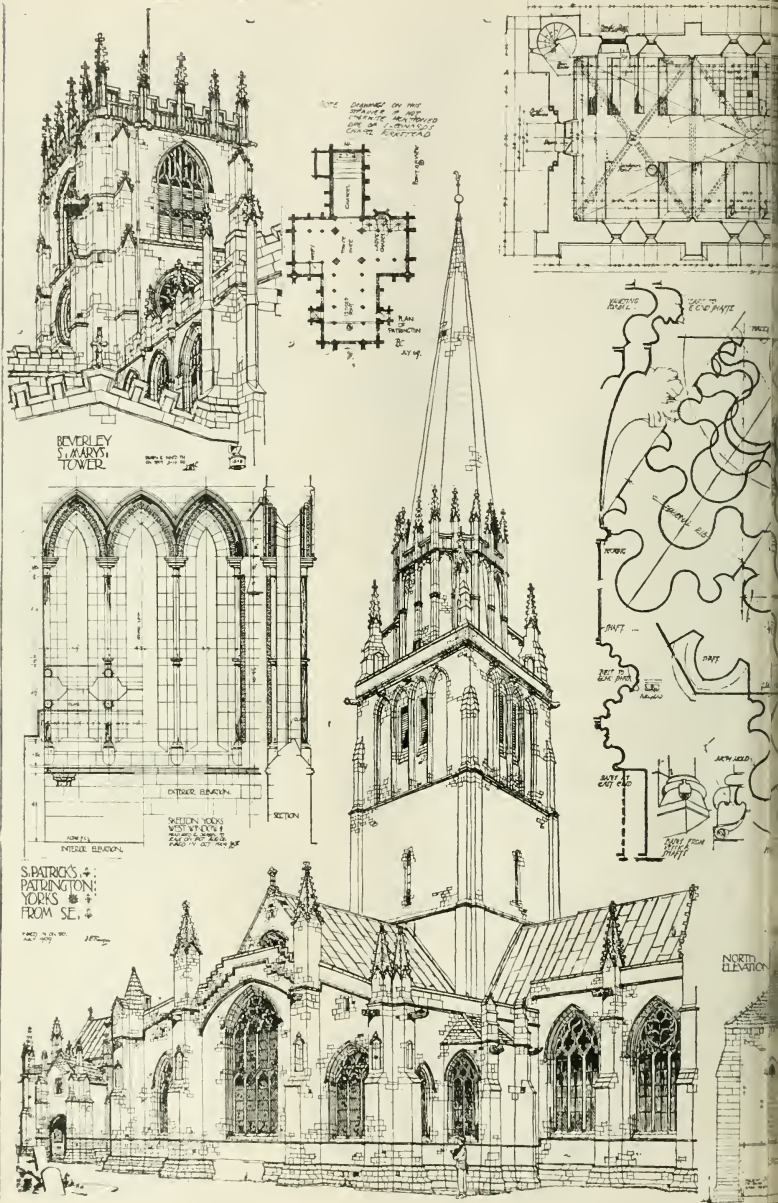
Llanafanfarch Church new hall was opened on Wednesday week. The institute, 38ft. by 18ft., was built by Mr. Robert Meredith (Builth Wells), and from a design prepared by Captain J. Vaughan, architect, Brynwg, Cardiganshire. Adjoining the hall is a cottage.

Sir William Ramsay, speaking at a public dinner on Saturday, intimated that the Royal Commission on Sewage Disposal would shortly issue their final report. The principal recommendation would be that there should be formed a permanent body—a sort of central board—which should regulate not merely the disposal of sewage, but also the requisite subject of the water supply of the country.

A parish-room, which has been provided at Canon Pyon, as a memorial to the late Mr. R. H. Percival, a son of the Bishop of Hereford, was opened by the Dean of Hereford on Thursday last week. The main walls of the hall are of brick, covered with Broadland tiles, and timber-work on the ceiling is in the upper portions, having plastered panels of cement, in keeping with the old work in the village. The main room measures 50ft. by 23ft., including the stage. There are also a committee-room, 10ft. by 10ft., a kitchen, 12ft. by 10ft., Mr. Herbert Skyrme, architect, of Walsingham-street, Hereford, prepared the plans and supervised the work, and the contractor was Mr. Charles Cooke, of St. Owen's-street, Hereford.

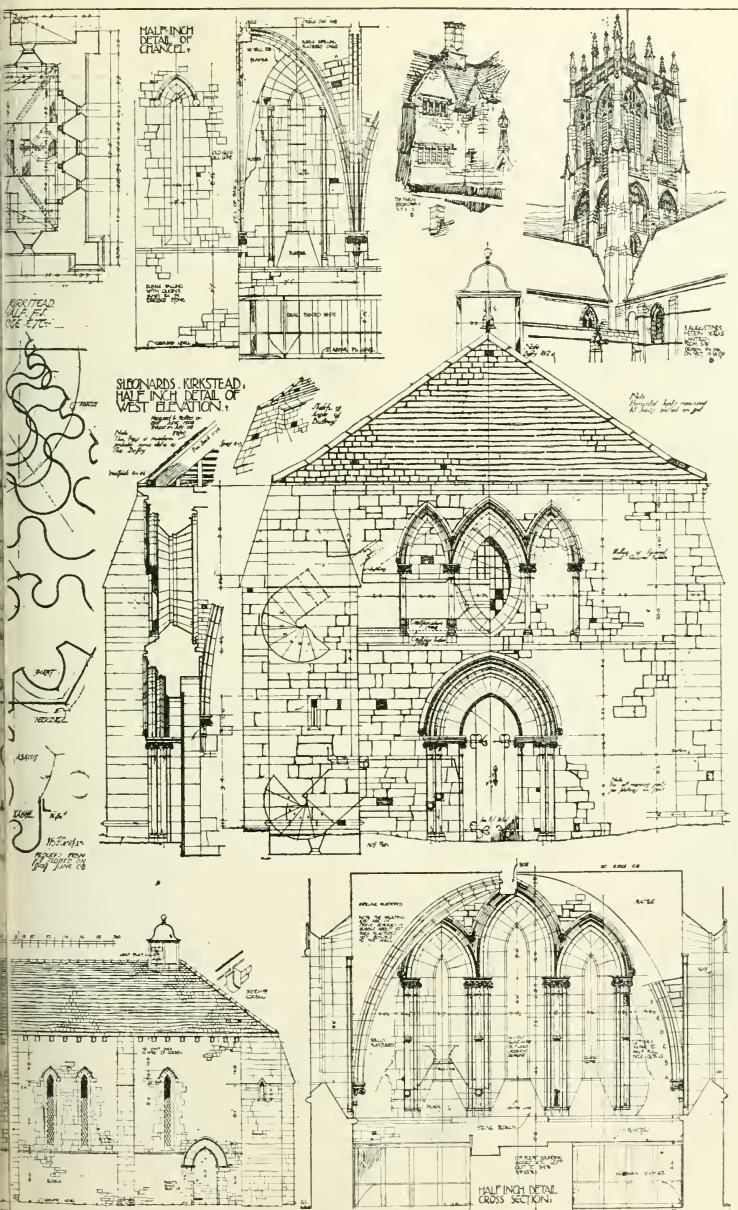
GUILD BUILDING
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ROYAL INSTITUTE OF BRITISH ARCHITECTS:
PRIZE DRAWINGS by MR.

9.-FEB. 9, 1912.



THUR CATES PRIZE—FORTY GUINEAS, 1912.
 COVER (Pugin Student, 1911).

PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND.—The fourteenth annual report of the committee, that for the session 1910-1911, states that the total membership now stands at 92 as against 89 at the close of last year, being an increase of three. Owing to a dearth of students in Dublin it was unfortunately found impossible to carry on any of the classes this year, and under these circumstances the exhibition of students' work was also abandoned. A number of manufacturers have availed themselves of the facilities afforded them by the Technical Museum for exhibiting their goods, and have thus added to its interest and utility, the present display of modern building materials being very representative. The annual excursion which had been arranged this session to Oxford had to be abandoned owing to the fact that several who intimated their intention of joining the party were at the last moment prevented from doing so. Four designs were submitted for the Institute Prize, being an increase on last year; only one for the President's Prize and Downes' Bronze Medal, and none submitted in the Vice-Presidents', Reilly, or poster competitions. The following awards were made: Institute Prize, Mr. P. J. Munden winner. Mr. G. C. Ashlin judge; Downes' Bronze Medal, Mr. W. J. Keatinge winner, Mr. F. G. Hicks judge; President's Prize, Mr. Cyril Keele.

"THE ARCHITECTURE OF STAMFORD."—A meeting of the Leicester Society of Architects was held in the society's rooms, in St. Martin's East, Leicester, on Friday evening. The president (Mr. W. M. Cowdell, F.R.I.B.A.), was in the chair. A lecture on "The Architecture of Stamford" was given by Mr. H. P. Traylen, A.R.I.B.A., who, after giving a brief introductory history of the town, dealt with the 14th and 15th Century architecture, drawing attention to important points of development. He then went on to speak of characteristic 13th, 14th, and 15th Century work, and also examples of Tudor, Queen Anne, and Georgian houses, almshouses, and other characteristic local work. The lecture was illustrated by a number of lantern-slides, including a number of views of Burghley House. A vote of thanks was accorded to the lecturer, on the motion of Mr. S. Perkins Pick, seconded by Mr. B. J. Fletcher, head-master of the School of Art, and supported by Ald. A. E. Sawday, Mr. Herbert, and the president. In responding, Mr. Traylen expressed his willingness to give to the society a number of the architectural drawings of the late Mr. F. W. Ordish, with whom his father was formerly in partnership.

GUILD OF ARCHITECTS' ASSISTANTS.—The annual report of this guild for 1910-11, which has been compiled by the three following members: Messrs. J. H. Chandler, A.R.I.B.A., S. Douglas Topley, A.R.I.B.A., and J. C. Winfield. During November, 1910, and March, 1911, the following proposals were made by the Guild to the Royal Institute of British Architects and the Society of Architects for their consideration in framing the proposed Registration Bill: (1) Registered practitioners to employ only registered men as assistants; (2) restriction of the number of pupils and unpaid assistants in a registered practitioner's office; (3) to legalise a scale of salaries for assistants, subject to approval of registration or other agreed authority; (4) that the general provisions of the Bill should offer greater security to the pupil by surveillance of his progress on request, and ease of appeal to the registration or other agreed authority by his parents or guardians, when necessity demands; (5) that the present position of the assistant in relation to open competitions be retained. This is the first occasion on which any definite proposals regarding the pupil and the assistant have been made to the two premier architectural societies. The Council, with all assistants that the prevailing apathy with which the registration proposals have been received by the profession, and especially by assistants, provides a good reason for their possible appearance in law by the consequent removal

of a large number of awkward objections. Assistants should be sure that the resulting Bill represents and protects their interests. The Council regrets the conditions proposed for the amalgamation of the Royal Institute and the Society of Architects, "causing, as they do, considerable indignity and acute jealousy amongst all concerned." It is believed by the Council that better conditions of professional unity could have been formed by the creation of a Joint Board. As to the National Insurance Act, the Council point out that it is altogether beneath the custom of the profession to pay the full salary to an assistant during sickness, whereas the proposed employers' contribution will provoke the discontinuance of this customary benefit, leaving the assistant with the State allowance only, and taxing him with the necessary premium to obtain it. Assistants are requested to formulate their grievances and send them to the Council of the Guild, who will obtain the best legal advice available for the benefit of members. In January, 1911, a difficult case of alleged unlawful dismissal was dealt with by the Council, involving the question of the legality of radius agreements, which are commonly imposed in provincial practice. The Council obtained advice, and discovered that these agreements are legal. The Council regrets the tone of the Notes on the Changes in the R.I.B.A. Announcements, which appeared in the R.I.B.A. Journal, and was evidently endorsed by the Board of Architectural Education. The special attention of members is drawn to the Employment Bureau, of which Mr. J. F. Burkinshaw, Licentiate R.I.B.A., 19, Craven-street, Strand, W.C., is the hon. secretary. The Council, in conclusion, desire to impress their fellow members with the fact that the present position is necessary to render the Guild's proposals more effective. Appended to the report is a special note on fixing a scale of minimum salaries, adopted by the Council on December 17, 1911. In this the necessity for establishing a scale is emphasised, and it is pointed out that no difference is made in the present average salaries between assistants possessing examination qualifications and those without them. The present average salary at the ages of 19 to 21 is 21s. per week; at the ages of 21 to 25, 31s.; at the ages of 25 to 30, 49s. 3d.; at the ages of 30 to 40, 61s. 8d.; and at the ages of 40 and over, 65s. The Council suggest this should be raised for a working week of thirty-nine hours as follows: Improvers, 19 to 21 years of age, 25s. per week; assistants, 21 to 25, 35s.; 25 to 30, 50s.; 30 to 40, 65s.; and 40 and over, 70s.

LIVERPOOL ARCHITECTURAL SOCIETY.—On taking the chair at the fifth sessional meeting of the Liverpool Architectural Society on Monday evening, Mr. A. Thorneley (president) reminded the members of the invitation of the Birmingham Architectural Association to inspect the new Art Galleries at that city on the 23rd inst. He called upon Mr. Herbert L. North to read a paper on "The Old Buildings of Snowdonia." The lecturer, having remarked that the simple types of building at Snowdonia have survived in the varied landscape recommended visits to North Wales in winter, the aspect of the country being at present glorious. He proceeded to describe the early and square Celtic churches, and to trace the introduction of chancels by the Latin monks, after which he illustrated the development of domestic architecture.

A Local Government Board inquiry has been held at Exeter into an application of the corporation for sanction to a local authority extension of the infectious diseases hospital at Whipton. Mr. T. Moulding, the city engineer and surveyor, has designed the plans.

At Maulden, Beds., the Duke of Bedford has established at a cost of about £5,000, several small holdings on an ownership scheme of repayment in 30 years. The buildings are mostly in eroded timber, with Lincolnshire pantile roofs, with houses suitable for working farmers on 40-acre holdings, and have been designed and carried out under the direction of Mr. H. Stanger, M.C.A. Bedford, and Woburn Sands. The timber buildings were erected for 3d. per ft. cubic.

COMPETITIONS.

BIRMINGHAM BLUE COAT SCHOOL.—A preliminary architectural competition announced (strictly limited to Birmingham architects) for new school buildings, to be erected upon land situated between the Warwick-road and the Great Western Railway Co.'s line at Olton. The Governors have appointed Mr. G. H. Hunt, F.R.I.B.A., of 3, Raymond-buildings, Gray's Inn, London, as assessor, to act with Mr. Charles E. Bateman, F.R.I.B.A., their hon. consulting architect, and draw up these conditions and advise them as to the designs submitted, and it is their intention to follow such advice, unless there is some grave reason to the contrary. Three designs will be selected, and the authors will be paid £50 each to develop an and redraw their plans to a larger scale, showing further details. In the event of the governors failing to proceed in the second competition, the authors of the three designs will be paid £25 each. In the event of the governors failing to proceed with the second competition not receiving instructions to proceed with the working drawings within two years from the date of the award he shall be paid a further sum of £100 in settlement of all claims. All premiated designs shall belong to the governors. The author of the selected design in the second competition will be retained as architect for the new school buildings, and shall perform the duties and be paid in accordance with the scale of fees sanctioned by the Royal Institute of British Architects, and his appointment will be the subject of a legal agreement. Designs are to be sent in by April 20.

DESIGNS FOR MURAL PAINTING.—The committee, of which Mr. D. S. MacCoo is chairman and Mr. Charles Aitken and Mr. Wilfrid Walter are joint hon. secretaries, formed to promote the practice of mural painting in schools, churches, hospitals, and other public institutions, more especially by young artists and students, a scheme long ago propounded by Mr. Watts, will hold a competitive exhibition of designs at Crosby Hall, Chelsea, in the latter part of May. Several schools and other buildings have already offered wall-spaces for experimental treatment, and designs from the exhibition will be selected to be carried out in these spaces. Subscriptions may be sent to the Hon. Treasurer, Mr. John B. B. Atterley, at Crosby Hall, Cheyne-walk, Chelsea, and information obtained from the hon. sec., at the same address.

HASTINGS.—The King Edward VII. Memorial Fund Competition award of prizes has now been determined for the new building as follows:—First, No. 6, Messrs. John Saxon Snell and Stanley M. Spoor (jointly). 37, Maid-a-vale, London. W. Second, No. 9, Messrs. C. K. and T. C. Mayor, 41, John Dalton-street, Manchester. Third, No. 31, Messrs. Adams and Holdridge, 28, W. Wood-street, Walsall, W.C. The referee was Mr. Edwin T. Hall, F.R.I.B.A. All the drawings in the competition will be publicly exhibited in the Drill Hall, Middle-street, Hastings, from Tuesday to Saturday in next week. The hours will be from 10 a.m. till 5 p.m., and on the closing day (Saturday, the 17th inst.) from 10 until 7, the aim of the committee being to give ample opportunities for inspection of the designs to those who may only be free at the end of the week.

STAFFORD FREE LIBRARY.—The plans for the proposed new Carnegie Library at Stafford will be exhibited for public inspection at the borough hall to-day (Friday) and to-morrow (Saturday). Mr. H. T. Hare, F.R.I.B.A., the architect for the County Council Buildings at Stafford, has adjudicated upon the 210 plans which have been sent in for the library, the cost of which is limited to £4,000. The design placed first was by Messrs. Briggs, Volstenholme, and Thorneley, 51, North John-street, Liverpool; second, Messrs. Sutton and Gregory, Bromley House, Angel-row, Nottingham; third, Messrs. Castle and Warren, Talbot House, Arundel-street, London, W.C. Probably on few competitions for so small a sum has so much labour been expended.

Correspondence.

THE POLICY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—Your correspondent, Mr. Gammell, is, of course, entitled in a way to call upon the verdict of the business meeting held at the Institute on January 8, in so far as the report of the Council was referred back for further consideration. Nevertheless, those who happen to differ from the conclusions urged by him and by his companions were precluded from having an opportunity for expressing the contrary view because the party who had whipped up the opposition attended by concerted action in such a way, and so rapidly, one after another, as to give no one else a chance of a look in.

This was "good business" for them, I dare say, but the meeting was certainly mismanaged. To insure an impartial hearing for both sides, the obvious course would have been to require those who wished to speak to send up their names to the Chairman, leaving it to him to call alternately upon the representatives of each camp. Subsequently realising the result of such a want of forethought, and likewise the unwisdom of disposing of so comprehensive a question after so brief and one-sided a discussion, the President proposed to adjourn the meeting, but the concert at once, with acclamation, demanded a vote being taken there and then. The technical right of the majority present thus to insist on this conclusion I do not dispute, but I must say the result was neither conclusive nor wise.

I know that many abstained from voting because the abstract of the draft for a Registration Bill was attached to the resolution as to the already agreed upon incorporation of the Society of Architects, and I know that some independent and thoroughly representative members besides myself had come prepared to speak in support of the proposition on the agenda paper; but no chance for their speaking was afforded.

The voting, such as it was, resulted not so much from anything said by either Mr. Perks or Mr. Gammell as from the reasonable desire, so clearly put by Sir Aston Webb, to separate the two subjects, and thus to deal with coalition in the first place, and registration after. It resolved itself really, as Sir Aston Webb said, into a matter of terms. Only extremists wanted to wreck the project. Till these terms are disposed of it would be most unprecedented to allow a verbatim report of this partial expression of opinion to go forth to the world as if it were the well-considered judgment of the general body of the Institute, and so prejudice what is still an *en jure* judgment. "Il est comme le chien du jardinier."

I am not interested, and never have been, in the Society of Architects, but I do clearly see that it would be a great gain to the profession if both bodies could become one fold under one shepherd. (This happened in the "forties" when the old Society of Architects and Surveyors was incorporated in the R.I.B.A.). I am prepared to risk the chance of "black sheep," such as are to be found in every flock, and during my quarter of a century membership of the Institute I have known a few goatish ones.—I am, etc.

ONE WHO WISHED TO SPEAK AT THE MEETING.

Mr. Harold Plews has resigned his position as surveyor to the Norton Rural District Council.

A new Roman Catholic church and schools are being built on the Antrim-road, Belfast, from designs by Messrs. E. and J. Byrne, of Waring-street, Belfast.

The city council of Birmingham decided on Tuesday to make alterations and additions to the council-house by raising a wall and portion of the wall and roof of the east wing to provide a drawing-office for the joint use of the city surveyor's staff, the public works department and other departments of the corporation, at an estimated cost of £3,000.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

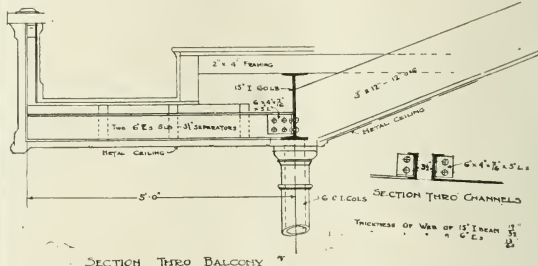
The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. J. G. Hindmarch, L.R.I.B.A., Town Hall, Stockport.

QUESTIONS.

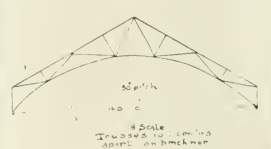
[13084].—PAVING.—Will a reader give me specification for good granite-concrete paving? Should sand be mixed with granite chippings?—Chips.

[13085].—THEATRE BALCONY.—I would like to obtain some help in the following problem. The section shows the front seats of the balcony of a



theatre, supported by cantilever channels framed into 15in. I 60lb. per foot. The load on channels is based on live load of 110lb. per foot square. The uniform load on one pair of channels equals 4,400lb. Can anyone give me method of calculating strength of joints and connections, giving number of rivets and size of framing-angles, and also if bolts could be used instead of rivets through the web of the 15in. I beam?—Alfred Small, Carew Homestead, Tampa, Florida, U.S.A.

[13086].—STRESS DIAGRAM.—What is the simplest stress diagram of the enclosed sketch of a roof truss for a slated roof, and combining live and dead loads



in the same diagram, and taking reactions parallel to wind-pressure, and supporting a plaster ceiling? Would it be correct to compound wind into a vertical load? If so, why is this not generally done by the authors of textbooks? I see it was done in an illustration in your last issue.—Vertical Load.

REPLIES.

[13084].—TILED ROOF.—Snow being one of the best tests as to the watertight qualities of a roof, the weakest spots have been indicated. Why not "piec-up" with cement all these weak spots in a similar manner to the "piecing-up" of a stone-tiled roof? This method should not prove costly. Torching, under these circumstances, would not be any too good for the roof timbers, keeping them practically always damp; and likewise vegetation is

not a good sign, indicating rather the porosity of the tiles.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

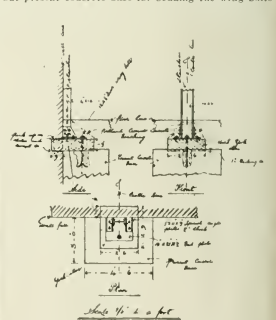
[13081].—TILED ROOF.—After a recent heavy snow-storm a newly-tiled roof is said to be leaking. Should anything be done to remedy it? Not at present. The so-called "leaking" is no doubt due to fine snow drifting into the roof and then thawing. A perfectly watertight roof will do this in certain circumstances. The roofing will, by ageing and vegetating, become quite "driftproof," as I have no doubt it is quite "rainproof."—Frank Wilson, 225, Nottingham-street, Sheffield.

[13082].—TILED ROOF.—The doubtful saving of initial cost in works of a constructional nature is in most cases far from economical. The tiles, if new, may be more or less porous, and will probably "weather." Fine snow, falling during a strong wind or gale, is often blown under the tail of slates or tiles that do not "sit close," or lie flat on the one underneath, and will blow in where rain could not. This, in the case of roofs not boarded or pointed underneath, is deposited on the top of ceiling and eventually comes into evidence as damp patches on the face of the ceilings. To have the whole of the under side of tiles well pointed, or "torched," with good horsehair mortar is probably the best and cheapest remedy, under the circumstances.—J. G. Hindmarch, L.R.I.B.A., Town Hall, Stockport.

[13083].—RAISING WATER.—Mr. E. V. King had better write Messrs. R. Richards and Co., Upper Ground-street, S.E., who will probably be able to fix him up with something on the lines of their automatic sewage lift. For a description of this lift, see Mr. A. T. Middleton's book on Drainage (latest edition), where it is fully described.—Frank Wilson, 225, Nottingham-street, Sheffield.

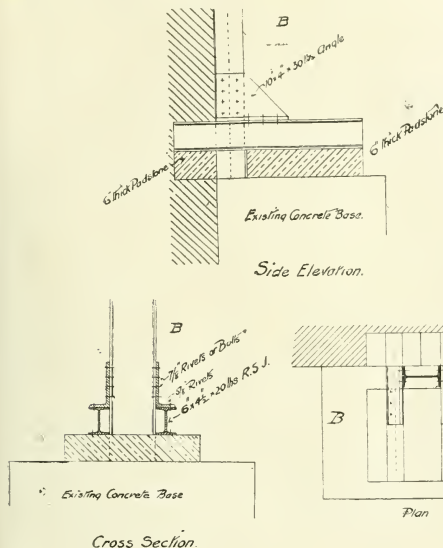
[13082].—CEMENT-CONCRETE BASE FOR R.S. STANCHION IN WRONG POSITION.—The drawings submitted herewith show a method of transmitting the load from stanchion to centre of existing concrete base. If possible, tail the York stone into the

old wall as shown. I have also suggested concrete benching as a protection to steelwork at base. Hack out present concrete base for bedding the wrag bolts



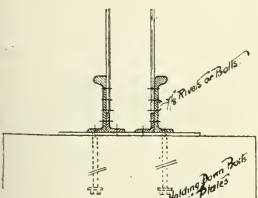
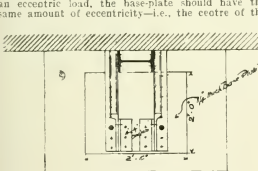
in same, and fill in as defined on drawings.—A. H. Winterburn, M.S.A., 147, Newcastle-avenue, Workson, Notts.

[13082].—CEMENT-CONCRETE BASE FOR R.S. STANCHION IN WRONG POSITION.—Under the circumstances, the stanchion must be treated as having an eccentric base or foundation. A stanchion cannot be regarded as centrally loaded, even if the load is applied directly over its axis, unless the foundation is symmetrical and the base-plate projects equally on opposite sides. Owing to the proximity



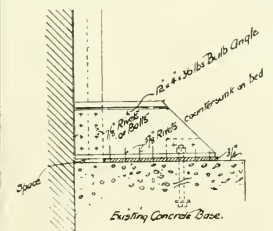
of the existing wall, the base-plate must project to one side, and bending stress will be induced in the stanchion. If the stanchion has been calculated for an eccentric load, the base-plate should have the same amount of eccentricity—i.e., the centre of the

special nature has been introduced. The alternative scheme, B, is applicable only if the existing wall is strong enough for the purpose and circumstances will



Cross Section.

base-plate should be directly under the load; but if the stanchion has been designed for a central load (which is not stated in the query), and it is desired to make the base-plate eccentric, its width should be extended to reduce the intensity of the stress on the edge nearest the stanchion. This is what has been assumed in the following details, and the calculations taken as follows:—Area of base-plate, 3 ft. super.; taking a safe load on 5-to-1 concrete of 5 tons per foot super. = 40 tons; No. 16 lb. rivets or bolts; safe shear 2.5 tons each = 40 tons. (It would necessitate taking a few bricks out of the existing wall to get at the back of stanchion, and bolts would be used in these positions, and the brickwork made good on completion.) All the sections shown are stock sections, and nothing of a



Side Elevation.

allow it to be utilised. — J. G. Hindmarch, Lic.R.I.B.A., Town Hall, Stockport.

Mr. E. J. Harding, who has been clerk of the works at St. Paul's Cathedral for 37 years, retired yesterday (Thursday) owing to ill-health.

At the annual meeting of the Church House, held at Liverpool on Monday, the architect, Mr. George Braubury, of Cook-street, in that city, reported that the extension of the House is making good progress, and will be on foot in November next. All the available shops and offices had already been taken by tenants. The cost of the extension will be £15,000, exclusive of furniture.

Mr. C. H. S. Gullen, architect, Aberdour, pleaded not guilty at Dunfermline on Friday to a charge of having trespassed in pursuit of game in Little Humble wood, on the estate of Aberdour, of which Mr. David Cunningham, Dalachy, is the shooting tenant. The only witness for the prosecution was Walter Gray Cunningham, son of the complainant. Sheriff Umphreston convicted, and imposed a fine of £1, with £1 3s. 2d. of expenses, the alternative being five days' imprisonment. An agent asked that a case be stated for appeal to the High Court.

LEGAL INTELLIGENCE.

BUILDING OPERATIONS IN PICCADILLY.—*Henry Atkin (Limited) v. Princes Hall Restaurant (Limited).*—Mr. Justice Warrington heard on Friday a motion by Henry Atkin (Limited), gunmakers, of 41, Fenchurch-street, W., that the proprietors of the Princes Hotel and Restaurant, Piccadilly, their contractors, servants, workmen, and agents, might be restrained by the order and injunction of the High Court until judgment or further order from excavating the soil under or adjacent to the east wall of the plaintiffs' premises so as to endanger the stability of the plaintiffs' wall or premises, or to cause any subsidence thereof, or from so building or so conducting their building operations as to endanger the stability of or injuriously affect the plaintiffs' wall or premises, or cause any subsidence. Mr. Justice Warrington, after hearing the arguments of counsel, granted the plaintiffs an interim injunction in the terms of the notice of motion over to-day (Friday).

CONVICTION OF AN ARCHITECT.—Before Judge Lumley Smith, K.C., at the Central Criminal Court on Friday, the trial was concluded of Cyril Frederick William Fryer, forty-four, architect, a member of a firm now in business in Victoria-street, who was indicted for obtaining £46 by false pretences from Gertrude Amy Bartlett, wife of a tram conductor, living at Beaufort-street, Chelsea. Defendant, who pleaded not guilty, had been found guilty the previous week of obtaining credit to the extent of £120 without disclosing the fact that he was an undischarged bankrupt, and also of obtaining a motor-car by false pretences from the Brompton Motor Company. It was alleged that the defendant obtained Mrs. Bartlett's money on the false representation that he would invest it in a flourishing picture-palace business, as "The New Picture Palace, Limited," representing that the company had acquired the Princes Hall, Kew Bridge, which he said was fully equipped. He also stated that Sir Valentine Grace was a director of the company. The case for the prosecution was that the company had not acquired the place indicated at Kew. Sir Valentine Grace had resigned his connection with the company many months before the prisoner's interviews with Mrs. Bartlett. The prisoner gave evidence denying the charge. He was found guilty, and passed a term of four months' imprisonment. He was sentenced to one month's imprisonment in the second division for obtaining credit without disclosing the fact that he was an undischarged bankrupt, to eight months in the second division for obtaining the motor-car by false pretences, and eight months in the second division for defrauding Mrs. Bartlett, the sentences to be concurrent.

PARTY - WALL DISPUTE. — ACTION AGAINST SIR JOHN WOOLFE BARRY.—In the Court of Appeal on Monday, before Lord Justices Farnel and Kennedy, the case of Minturn v. Barry was heard upon the appeal of the plaintiff, Miss Minturn, from a decision of the Divisional Court of King's Bench, refusing her leave to appeal. Plaintiff also applied for an extension of time in which to appeal, her time having run out.—Mr. Hudson, K.C., in support of the application, said the plaintiff, Miss Minturn, was the freeholder of a house known as 14, Chelsea-embankment, which she had acquired some years ago. About the time that she acquired the house, she discovered that a wall at the rear of the house was very damp, and she endeavored to put that right, but without success. This dampness caused injury to the health of her servants, and she then served a party-wall notice upon the adjoining owner, the defendant, Sir John Woolfe Barry. That was on June 22, 1910, and the notice was given under Section 85 of the London Building Act. The notice expressed the wish to excavate the defect by putting in some impervious material. It was found that the wet came into the wall from the defendant's side. The case then went in the ordinary course under the Act to two county courts, and the two referred it to a third, and the plaintiff then appealed from the decision of the third surveyor, who said that the wall was not defective merely because it was damp. From that decision the plaintiff appealed to the county court, there being a right of appeal under the London Building Act. In the County-court the defendant took the objection that the wall could not be held to be defective merely because damp, and that decision the plaintiff appealed to the Divisional Court, where it was held that a party-wall could be defective because of damp, within the meaning of the London Building Act. The County-court then retried the case on the material facts. It appeared that the defendant had a creeper

Our Office Table.

growing upon one wall when the plaintiff claimed it as a garden wall. The County-courthouse Judge seemed to think that the creeper ought to be preserved and that the plaintiff ought not to do anything to it. Following some remarks made by the Judge in the Divisional Court on the question whether the plaintiff ought to be allowed to execute work on the adjoining owner's side, the County-courthouse Judge held that the previous history of the wall might be gone into. He (the County-courthouse Judge) then went into the history of the wall, when he found that originally the plaintiff's city wall was erected upon the top, or embodied part, of the old garden-wall. He then said that if a building owner chose to make use of a wall such as a garden-wall, which might have been quite sufficient for the purpose of a garden-wall, he could complain and say afterwards it was damp and defective, and that he could go on to the building owner's side and remedy the defect. He made a certain order by which the plaintiff was precluded from going on the defendant's side of the wall, and doing something which it was impossible to do on the plaintiff's side. He said that the plaintiff could have an independent wall inside her house. Another alternative was that the plaintiff could cut the wall in two vertically, and the wall between the two parts of the wall an impervious course. Lord Justice Farwell asked what jurisdiction the learned County-courthouse Judge had for making such an order. Mr. Hudson said that his submission was that the County-courthouse Judge had no jurisdiction to make any such order. He had no order and that the plaintiff was not to do any work upon the defendant's side. He contended that that was directly contrary to the Act. The object of the London Building Act was the protection of the public health and the protection of the fire. Of course, the plaintiff did not want to inconvenience Sir John Wolfe Barry.—Lord Justice Farwell: We have only to do with people's property. He and Lord Justice Kennedy both thought there was a point which might be made and that the Divisional Court ought to have given leave to appeal. Leave to appeal would therefore be given. Mr. Hudson then contended that the plaintiff's time for appealing ought to be extended. What the plaintiff did after the decision was to consult a surveyor to its effect and whether she could carry out the particular works, and it was thought that she had allowed the time for appealing to run out. It was the plaintiff herself responsible for the delay.—Lord Justice Farwell: I think your time is short.—Mr. Bliss, for the defendant, said that the plaintiff's time for appealing expired on December 22, and he contended that in the circumstances her time of appealing should not be extended. At the conclusion of the arguments, their lordships granted the extension asked for.

WATER SUPPLY AND SANITARY MATTERS.

TRURO SEWAGE DISPOSAL.—Mr. Frederick A. Barnes, Assoc. M. Inst. C.E.E., engineer and surveyor, to City of Truro, has submitted to the town council his report on the scheme prepared by his predecessor, Mr. Measham Lea, for the interception and disposal of the sewage of the city. He estimates the cost of the scheme to be £41,055 as compared with the estimate of £21,055 in his last report, and the cost of the scheme embodying the alterations he (Mr. Barnes) recommends he estimates to be £20,851.

DISS WATER SUPPLY.—The Diss Urban District Council, after a long and tedious waiting, have adapted the scheme of water supply formulated by Mr. W. H. Booth, C.E. Tenders have been accepted from about half a dozen firms for various portions of the work, including the new pump tank, mains, driving power, pumps, softening plant, &c. Messrs. J. and H. Higgs, of Herne Hill, have already commenced operations in the construction of the water-tower, which will be 45ft. in height. The site is very near the Secondary School, and on the premises of Llandudno, which is owned by Mr. Christie has been appointed clerk of works.

THE DRAINAGE OF TWEEDMOUTH.—At a meeting of the water committee of Berwick sanitary authority on Friday, Messrs. J. and A. Leslie and Reid, civil engineers, George-Edwards, Llandudno, were present to report on the sewerage of the Tweedmouth district of the borough of Berwick. The matter was before the last meeting of the authority, and was recommended to the Committee with powers. The drainage of Tweedmouth is the natural sequel to the adoption of the joint water scheme, for which Messrs. Reid and Waring, London, are the engineers. No estimate of the cost of the drainage has been formed, but the probable cost of the water scheme is between £18,000 and £20,000.

With the concurrence of the Commonwealth Government, Sir George Reid, High Commissioner for Australia, has appointed Messrs. Marshall Mackenzie and Son architects in connection with the construction of the Commonwealth offices to be erected on the Aldwych Strand site recently acquired from the London County Council. Mr. Alfred Burr will be associated with Messrs. Marshall Mackenzie and Son in the work. As we have already announced, the plans for the proposed new offices were prepared by Mr. Alfred Burr and approved by the London County Council. They were illustrated by us in our issue of December 6 and 27, 1907.

The Education Committee reported to the London County Council on Tuesday that the Council on March 6, 1905, appointed Professor Beresford Pite as director of architectural instruction and lecturer on architectural subjects at the L.C.C. School of Building, Brixton, at a salary of £300 a year in respect of three evenings' attendance a week. Professor Pite now wishes to be relieved of the obligation to attend on as many as three evenings a week in consequence of his new duties at the Architectural Association. He has, the Committee reported, rendered excellent service to the Council during the last six years, and, should he attend on not more than two evenings a week, the Council would still have the advantage of his services in directing the architectural work of the school. Professor Pite's services cannot be valued pro rata to his present salary, in respect of each evening in week, and they suggested that he should be allowed to attend on two evenings a week, and should be paid at the rate of £250 a year. The recommendations were agreed to.

It was further reported to the Council at the same meeting that the widenings of Woolwich-road which the Council had decided to undertake in accordance with the powers conferred by the London County Council (Tramways and Improvements) Act, 1909, have been completed. By means of the improvement the street has been widened for about 4,100ft. from a minimum width of 26ft. to a maximum of 50ft., with a minimum of 45ft. It was further reported that the construction on the overhead trolley system of electric traction of the authorised tramways (i.) in Brook-green-road, Hammersmith-broadway (single line only), and Queen-street, and (ii.) from Putney Bridge, via Lower Richmond-road, High-street, Putney, and Putney Bridge-road, to High-street, Wandsworth, has now been completed. The latter will consider for public traffic on Jan. 29. It was notified that Mr. A. J. Bailey, a senior assistant in the architect's department, who will attain the age of sixty-two years on March 9, will be retired from the service as from March 31, 1912. Mr. Bailey, who has completed nearly forty-three years' service, is in receipt of a salary of £400 a year, and the Council has granted him a pension of £296 13s. 4d. a year. The proposal of the Council to retire Mr. Bailey from the absolutely open tender in L.C.C. contracts and to substitute a system of invitations to selected firms, evoked many protests, and induced the chairman of the committee to take the matter back for further consideration. Mr. F. L. Dove (chairman of the Establishment Committee), replying to Mr. J. D. Gilbert, stated that it was estimated that the contract for the new County Hall would be let in March, 1913, and the contract for the second part in the following July. It was estimated that the superstructure would take three years to complete from the time the contracts were let.

The latest municipal enterprise of Glasgow is the establishment of a fire insurance fund. The corporation are to undertake wholly the insurance of all properties belonging to the respective municipal departments and under their administration where the risk is of a normal character, and there are to undertake the insurance of any of their properties where the risk is considered to be of an abnormal

character to the extent of one third only. The principle of municipal fire insurance has been previously adopted, and at the last meeting of the council the scheme was approved by 36 votes to 23. The criticism of the minority was directed to the question of the financial stability of the enterprise. It was complained that the reserve fund available amounted to only £23,000. On the other hand, it was pointed out that in twenty-one years the council had paid £54,000 in premiums and had received back in claims £13,000. The premiums to be paid would be reduced under the new scheme by a third. The proportion of abnormal risks would, it was stated, amount to about £5,000.

A National Conference on Practical Details in the Administration of the Housing and Town-Planning Act will be held in Glasgow on Tuesday and Wednesday, March 19 and 20. The advisory committee has decided that the views of local authorities at the present juncture are of far clear and precise information as to the actual procedure to be followed in housing and town-planning work. The need for action will therefore be taken for granted, and the whole of the time of the conference will be devoted to the consideration of those questions of practical administration which are perplexing the minds of councillors and officials engaged in the work of administration.

A lecture on "The City Beautiful" was delivered by Mr. Edward Rathbone at the Free Library, Llandudno, on Tuesday night. The lecturer enlarged on the importance of preserving the beauty of pleasure resorts. He drew attention to the harmony of the Conway suspension bridge and tubular bridges with Conway Castle, and the way Conway Castle had been dealt with, so as not to destroy the romance of the old castle by vulgar and obtrusively ornamental iron railings. He also commented on the happy design and colouring of the Llandudno Pier, and the comparative absence of distressing advertisements such as disfigure Rhyll Pier. The lecturer, however, condemned the use of tiles in the Llandudno district as out of harmony with the limestone of the Great Orme's Head. He recommended that streets should be paved with colour, so as to get a pleasant broken colour effect. Mostyn-street he considered far inferior to Lord-street, Southport. More should be done by the town authorities to supplement the general gaiety of the place by the planting of more trees where possible. He called attention to the Bill for the control of public advertisements in places dedicated to recreation, such as Llandudno. Generally, the streets of Llandudno, the town people should be kept duly subordinated to the good of the town as a whole. Mr. Rathbone illustrated his lecture by lantern views of the old cities beautiful: the city of Liverpool, whose virtues and shortcomings were mainly illustrated; and Paris, mainly as the city beautiful, showed the last successful effort to make a modern city beautiful.

The mansion-house of Donibristle, near Aberdeen, one of the seats of the Earls of Moray, which stood in ruins for nearly a century, the last fire in 1858—fifty-three years ago—is to be restored. Workmen are now engaged in demolishing the blackened walls, which will take a matter of two months to level with the ground. The Earl of Moray, who is at present in residence, is taking a personal interest in the work, and last Friday fired the charge which has brought down the tall gable of the old house. The ruins in the striking ruins have been visited by many thousands during the half-century since the great fire, and they have viewed with interest the blackened walls and the picturesque surroundings. The ornamental gateway, close to the Forth, through which the approach is made, is an object of interest, being of fine hammered ironwork, the present of Queen Anne of Denmark, centuries ago to the then Countess of Murray.

The January and February issues of one of the most valuable contemporary, *The Journal of Theoretical Art*, are marked by a characteristic richness of the vigour of purpose and excellence of judgment which throughout its

The corporation of the city of Sheffield has obtained powers under the Public Health Act Amendment Act, 1907, to make by-laws "with respect to the height of chimneys of buildings and with respect to the height of buildings, and with respect to the structure of chimney-shafts for the furnaces of steam-engines, breweries, distilleries, or manufactories." Section 33 of the Act exempts the buildings of railway companies and others from the operation of such by-laws.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Eppingham House,

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Strand, W.C.

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GETTING OFF THE BEATEN TRACK.

It is possible that, as long as human nature remains what it is, the few will lead the way, while the vast majority follow them blindly, like the proverbial flock of sheep—never, apparently, pausing to think for themselves. The well-trodden path is at least safe and easy, although it may not be exciting; it presents less trouble, less risk of criticism or of failure.

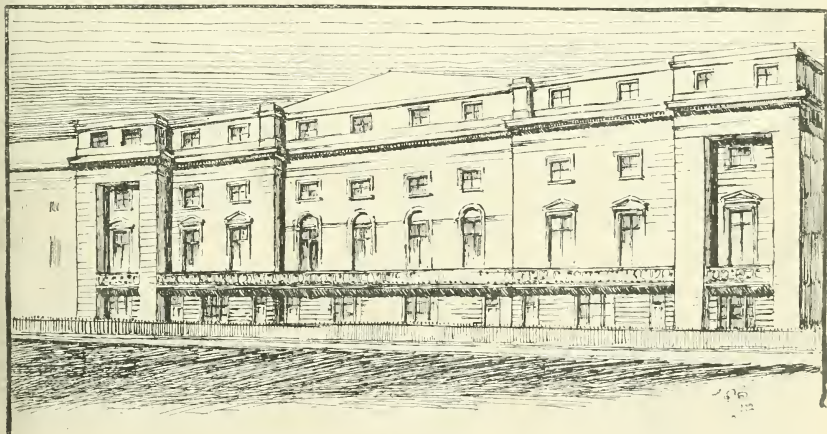
The architectural student is not more free from this trait of human character than other people, and the result can be

drawing of the Orangery, Kensington Gardens (for example), however perfect the draughtsmanship and accurate the dimensions, would stand any chance of success in an important competition in any school of standing.

There is, perhaps, less excuse for this blind following of precedent in London than elsewhere. In so vast a city there must necessarily be very many buildings presenting points well worthy of close and intimate study. They may not possess all the merits of better-known examples; but,

of practically unknown works each expressing some particular quality of architectural design, or occasionally merely a feature which it would be well to avoid. To select a few examples, more or less at random, will illustrate the point.

Euston Station possesses several features of excellent detail. Almost unnoticed in a dark vestibule is a range of C.I. gates, treated in a fine broad manner, splendidly characteristic of the material. The large centre ring is applied to the door in such a way that it connects up the vertical bars



BLOCK OF HOUSES, HAMPSTEAD ROAD, N.W.

seen in any exhibition of measured drawings and sketches, when certain stereotyped buildings in London and the provinces are almost certain to be in evidence, until reiteration deadens a large amount of the interest and beauty which they undoubtedly possess.

Of course, it must be granted at the outset that to each individual the subject is fresh; but does that justify the existence in every school, more or less, of three or four copies, by different men, of some well-known examples? Certain buildings become most flagrant offenders in this respect, and, as a result, no measured

in spite of this, it is questionable if infinitely more is not gained by finding and selecting a new example—and, incidentally, the freshness thereby given to the work, and the knowledge of the definite value of new records—than is lost by possible shortcomings in the building selected.

In addition to this, and possibly of more importance to the individuality of the artist, it tends to produce a stronger, more vigorous, and self-reliant personality. To turn to the sketch-book of such a man, instead of the stereotyped "Doorway from Carey-street," etc., it is found to be full

and at the same time insists upon its importance in the design. The interlacing rings around the edge are good in detail, and possess this same quality of characteristic cast-iron design. In the large hall, a cast-iron and bronze railing (the bronze since lacquered over) and the long console brackets under the gallery at once attract attention. The ceiling and clerestory, perhaps better known, although coarse in detail, are good in mass and outline.

Close at hand are the squares of Bloomsbury, with many quiet but effective groups of Classic houses. One of the less-known is shown in the sketch. (The last house on

the right was once occupied by Cruikshank.) This, although bare and possibly to some extent uninteresting, is nevertheless a good example of grouping and sub

station, vigorous and bold, would form a good key for many a modern lamp.

The entrance-gate from Maida Vale, N.W., is one of a series, many different

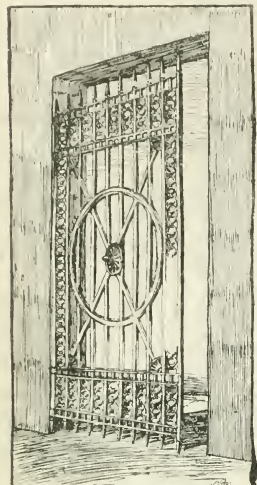
These few examples may serve to show the possibilities of hunting in backwaters; but it should require very little to convince the architectural student of the many delightful bits of work lying within reach of the office or the home. Once having called his attention to the fact, his own observation should be sufficient to show that often at the office door is a piece of good detail, unnoticed by anyone—least of all by the occupier or the user of the building.

WARMING DWELLING-HOUSES BY THE FRESH HOT-AIR SYSTEM.

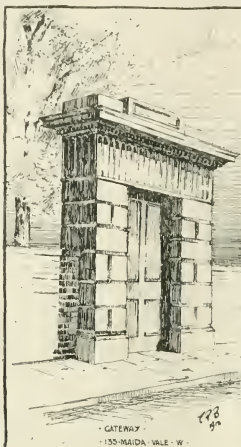
By GEORGE ASHDOWN AUCLEY, LL.D.

I have never during my practice been satisfied with the ordinary method of local heating by open grates only, dear as they are to the home-loving Englishman; and so far back as the early 'seventies,' when I erected the large house called 'The Tower,' in Selson Park, Liverpool, I installed a supplementary heating plant therein, using the Gibbs small-pipe, rapid-circulating hot-water system; but at the same time I furnished an open grate in every room in the house that called for one. Now, after my long experience in the United States, I am firmly convinced that the system adopted there, which I strongly favour, and describe and illustrate in the present article, will, when properly understood, win recognition in this country, on account of its manifold advantages.

Judging from what certain writers have said in the newspapers, there is an impression that the adoption of a general heating system must necessarily do away with the open fire, which have become part of our national life and domestic habits and associations. This is a groundless fear, for there is no necessity to abandon the familiar open fire, and the feelings of cheerfulness and sociability it engenders, simply because all the other parts of the house are pervaded by a genial standing and fully-exposed radiator of sufficient size has to be placed in every room, hall, etc., that requires to be warmed, and this necessitates the passage of the connecting steam-pipes through rooms, and from floor to floor, usually very unsightly. The radiators require to be properly attended to prevent condensation within them, and consequent noise when fresh steam is admitted, which requires the condensed water to be run off—all troublesome matters. In large houses steam-heating is practically a necessity, and an expert is required to tend the boiler, and regulate the steam pressure and circulation throughout the house. Steam-heating only acts upon the air in the rooms, and is, accordingly, not attended by active ventilation, and it is peculiarly dry and parching in its effects, necessitating the placing of water vessels, for evaporation, in the neighbourhood of the radiators. I have resided for several years in a steam-heated house, and can speak from personal experience and observation. Hot-water heating, which, as a rule, is safer and less troublesome than steam-heating, requires an installation almost as complete as that just described. A boiler and furnace of adequate



C. I. GATEWAY.
EUSTON-STATION.



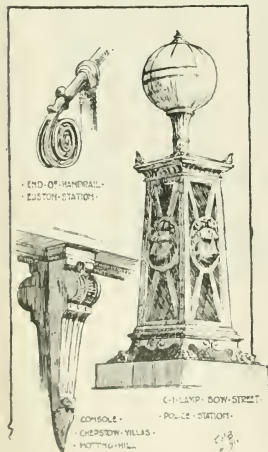
GATEWAY.
155-MAIDA VILE, W.

in treatment, but designed on broad and simple lines, which line this street, forming, with the boundary-walls, a screen to some interesting 19th-century Classic houses behind.

The gate-pier from St. Catherine's

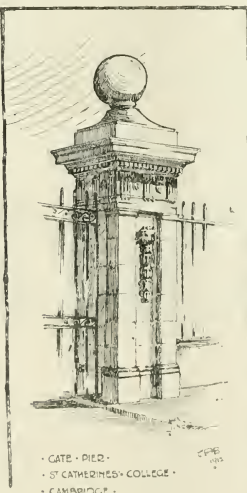
division, and might well form the basis for a modern street-treatment.

Again, observe the almost Greek purity of outline of the lovely little console from Chestow Villas, Notting Hill—a street of



END-OF-HANDRAIL.
EUSTON-STATION.

CONSOLE.
CHESTOW-VILLAS.
NOTTING-HILL.

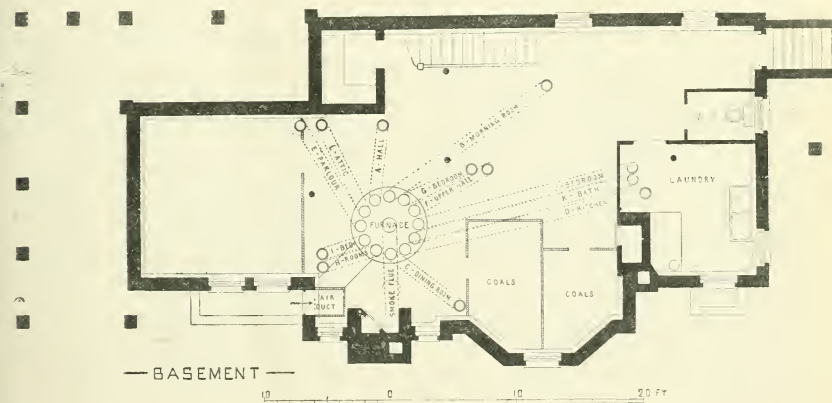
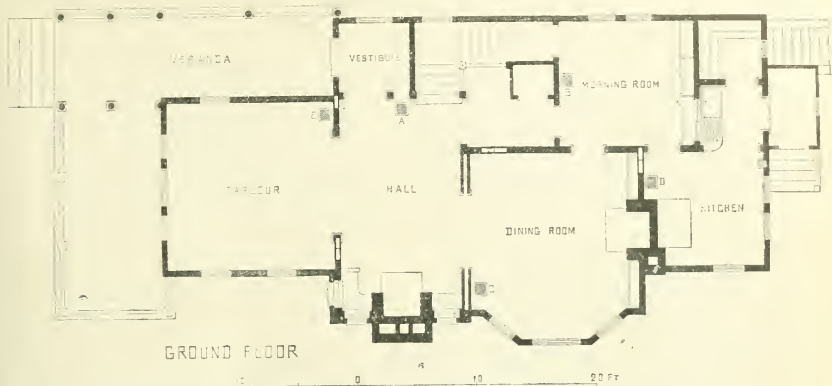


GATE-PIER.
ST-CATHERINES-COLLEGE.
CAMBRIDGE.

Mid Victorian stucco-fronted houses, which, in spite of their sometimes de-spised material, often possess a charming domestic feeling.

A cast-iron lamp from Bow-street Police-

College, Cambridge, is, perhaps, not so familiar as it might be; but to select one example from such a town is possibly hardly justifiable, where well-known and unknown work is in such abundance.



heating power to secure perfect circulation throughout the system are necessary. The boiler has to be properly connected with a pressure-tank, required to keep the entire system fully charged with water. Circulating pipes, to and from all the radiators, have to be properly fitted, so as to secure perfect circulation in whatever rooms the radiators may be shut off. Radiators, similar to those required for the steam installation, have to occupy exposed positions in all the rooms, etc. If the installation is not perfect, noise and other objectionable results will occur continually, and frequently at most undesirable times. Care has to be taken to prevent the water freezing at any time in the pipes, and when the apparatus is done with for a season all the water must be drawn off, and the radiators and pipes left empty until the apparatus is again required to act. While it is not possible to get the high temperature with hot water that can be easily reached with steam, yet all the heat that is desirable can readily be obtained with proper attention to the furnace. Hot-water heating, like that of steam, acts only on the air in the rooms, furnishing no active ventilation, and is, accordingly, dry, though not so parching as that which results from heating by steam at the highest desirable pressure. My experience of hot-water heating extended over

a period of five years in a house of moderate size.

The installations of both steam and hot-water plants are necessarily expensive, calling, as they do, for the liberal use of special and high-class materials, and requiring expert labour in all branches of fitting, and even when skilfully finished in every respect, they are both liable to go out of order. For warming large houses and public buildings, the adoption of steam-heating is practically imperative: neither the hot-water system nor the more desirable one I am now about to describe can be successfully operated in them.

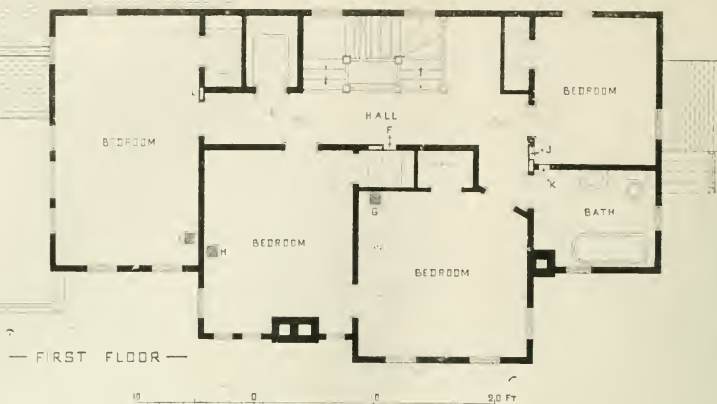
For dwellings of the ordinary dimensions, such as are being erected at the present time, in great numbers, in the suburbs of our large cities and towns, and in country districts, there is no general heating system so efficient, economical, and convenient as the American Fresh Warm-Air System. On the score of health it surpasses all other modes of heating, local or general, for it is the only one which combines the continual supply of fresh, moist air with adequate and agreeable warmth. From observation extending over eighteen years, and experience gained from houses I have erected for clients, and those resided in myself, I have formed the decided opinion that it is the only desirable system

for adoption in English villas, combining as it does health, efficiency, absolute safety, and economy in fuel and labour.

Reference to the plans of one of my American houses, which accompany this article, will make all the following details of the fresh hot-air system clear to the reader.

The furnace, or heating apparatus, is invariably placed in the basement of the house, and in as central a position as possible, and as close to the ascending flue, with which it is to be connected, as convenient. Such a position is indicated on the Basement Plan here given. A central position is desirable, so that the majority of the hot-air ducts

The plans will give those not familiar with American villas an idea of their general interior arrangement, although on the ground plan there are some features which are due to the special wishes of the client, notably the position and design of the so-called morning-room. Otherwise, the general openness which pervades the rest of the ground floor is characteristic of American taste in house planning. Here the parlour is almost entirely open to the central hall, while the dining-room is also exposed to the hall when its large sliding doors are opened. Although fire-places are introduced in the hall and dining-room, no dependence is placed on them for heating; for the entire house is provided with a complete hot-air system. In such a house, during zero weather, a fire in every room would not warm it sufficiently, according to the American idea of comfort. Open fires are looked upon as mere ornamental than useful.

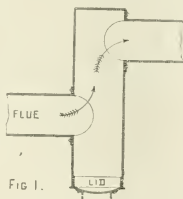


diverging from the heater may be kept as short as practicable. The position of the apparatus is also influenced by the fact that it is always desirable to have the supply of fresh cold air taken from the south or south-west side of the house; at the same time it may be remarked that while it is desirable to have the fresh-air duct reasonably short, its length, providing it is of ample size in cross section, is not a matter of great importance. The outer orifice of the duct, which should not be less than two feet square, must be above the external level of the ground sufficiently to prevent water from rain or snow flowing into it. It should be covered with open-meshed wire-gauze, so as to prevent rubbish being blown or sucked into it; but not so close as to materially check the free ingress of the air, or to clog up with dust or fluff. The duct between the outer orifice and the apparatus may be constructed of stout wood or galvanised iron. It must descend to the floor, or under the floor, of the basement, and be continued thence to the warm-air chamber surrounding the furnace. A sliding gate must be provided in the descending duct, to enable the desirable amount of fresh air to be admitted at any time, and to check inroads of strong wind, which would prevent the proper action of the apparatus, and force cold, instead of warm, air into the rooms.

The apparatus, indicated by the large circle on the Basement Plan, consists of a central, domed furnace surrounded by a drum of galvanised iron, about 6ft. in diameter and 5ft. high, secured to the cement floor, and slightly domed over at top. The furnace is cylindrical, about 2ft. in diameter, and is so constructed of cast iron as to be absolutely self-contained and fume-proof. All its adjuncts; namely, the ash-box, stoking-hole and door, flue-pipe, etc., being carried out from its cylindrical body to fit the surrounding drum, and so effectually prevent any smoke or fumes from entering the warm-air chamber of the drum. The lower portion of the furnace, or the fire-pot, has a stout fire-clay lining, set in the cast-iron walls which rise from the floor level, and extend up to the heating dome above the fire-pot. This domed portion is carried up to nearly the height of the surrounding drum, and its smoke-pipe is extended a sufficient height above the domed covering of the drum to receive the end of the external smoke-pipe, which connects it with the chimney-flue. The smoke-pipe is made of thick galvanised iron, commonly in several pieces which clip into each other, to enable it to be removed in summer and properly cleaned. It should have a short vertical piece inserted in its length, the smoke-pipe being connected with the same

at different levels. The bottom of the vertical piece to have a movable lid fitted to it, so as to admit of the soot or dust therein deposited being easily removed. A section of this contrivance is given in Fig. 1.

The rocking-bars of the furnace are connected by cog-gear with a horizontal bar, which is moved by an external lever, the simple to-and-fro movement of which effectually clears the fire-pot of all ashes. The doors of the ash-box and furnace are fitted with perforated slides, which regulate the supply of air below and above the fire. The dome of the furnace is made in different forms, so as to present as large a heating surface as possible; it is sometimes deeply corrugated, while in better furnaces it is cast with several tubes, which curve inwards



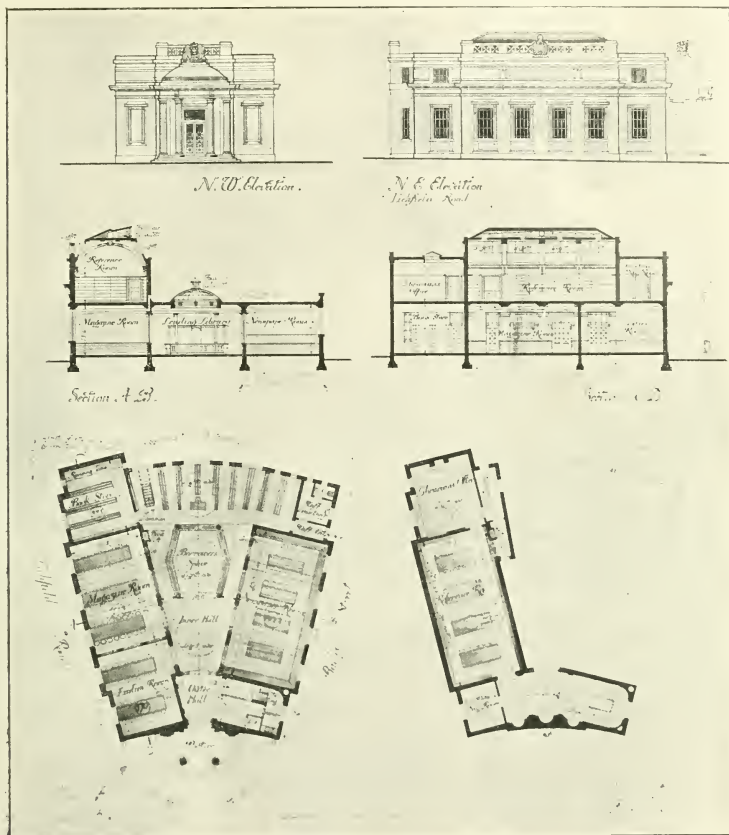
toward the fire, and present their open ends toward the warm-air chamber of the drum. These tubes add greatly to the efficiency of the apparatus.

To supply the heated air with the desirable degree of moisture at all times, a cast-iron cistern, holding about two gallons of water, is inserted in side of the drum; its chief portion—presenting as large a surface as practicable to the heated air—being inside the drum. A sufficient portion extends outwards to enable the cistern to be readily filled: this portion is closely covered by a cast-iron lid. The cistern commonly requires to be filled once every two days. In its operation it renders the warm air pleasant and healthy.

Round the domed top of the drum are projected nozzles for the reception of the warm-air ducts which extend therefrom to the several registers in the floors and the ascending ducts in the walls or partitions. The manner in which the ducts diverge from the drum is shown on the Basement Plan, each one being inscribed with its destination, and lettered to accord with the lettering of the several floor and wall registers marked on

the Ground and First Floor Plans. The warm-air ducts in the basement are commonly about 9in. in diameter, made of strong tin plate, and furnished with a disc-valve inside, by means of which any duct can be shut off from any portion of the house when not required, or when it is desired to concentrate the hot-air in any special rooms. These ducts are carried in position by wire loops fixed to the flooring above. The ducts open directly into shallow tin-plate boxes under the floor registers, marked A, B, C, D, and E in the Ground Plan, heating respectively the hall, morning-room, dining-room, kitchen, and parlour. The floor register is about 14in. square, and consists of an ornamental grating of cast iron or bronze having a series of small folding shutters underneath, which can be opened and closed by a slight touch of the foot, according to the amount of warm air desired at any time. The warm air is conveyed to the several rooms on the first floor and attic through vertical ducts built in the partitions, as indicated by the white, oblong openings therein on the Ground and First Floor Plans. These vertical ducts open into the floor registers on the first floor, marked G, H, and I, and directly into the wall registers indicated at F, J, and K. The vertical ducts used in American houses, built of wood or brick, are made of strong tin plate, and usually measure, in cross-section, about 12in. by 3in. to 4in. As only warm air passes (never above a temperature of 70deg.), they are carried up wooden partitions with perfect safety. Of course, if necessary, or preferred, in houses constructed of brick the ducts could be either of pottery or cast iron; but galvanised iron would be suitable in every respect. The wall register is similar in all essentials to the floor one already described, but having a simple device for opening and closing it by hand. It is usually placed at about 12in. above the floor.

The installation throughout, as shown on my plans, is extremely simple and inexpensive, and proved sufficient, with moderate firing in the furnace only, to heat the entire house to 70deg., in zero weather, throughout the day, and about 50deg. during the night and early morning hours, before full draught was started for the day. Of course, it is understood that the temperature of every room can be controlled, as required, by admitting more or less air from the registers. It is unnecessary to enlarge on the economy of labour, seeing that there is only one fire to attend to, and that close to the coal supply. Economy in fuel is secured; and fresh, pure air, properly warmed, is steadily poured into every room and space in the house, instituting a forced ventilation entirely free from draughts or currents of cold air.



Staffordshire Sentinel, Ltd., Photo.

STAFFORD NEW PUBLIC LIBRARY: THE SELECTED DESIGN.

Messrs. BRIGGS, WOLSTENHOLME, and THORNELEY, Architects.

The cost of the installation would not be more than that entailed by forming fireplaces and flues and placing grates and mantelpieces in almost every room of a house of moderate size. No one can adequately estimate the comfort secured by such a system of heating save one who has lived through a winter in an American house so warmed.

STAFFORD PUBLIC LIBRARY COMPETITION.

The competition for a new library at Stafford produced a remarkable response, no fewer than 210 designs being submitted for a building, the cost of which is not to exceed £4,000. Taking the cost of each design at £10—a moderate estimate, when principal's time, draughtsmen's wages, etc., are included—the net result is that the profession has spent £2,100 in order that one member of it may earn £200. It is obvious that there is something financially unsound about a system like this, but it is difficult to see

where the remedy lies. A limited competition, no doubt, meets the case admirably for those who happen, by means of their reputation or influence, to be included, but is of little use to the younger and unknown men. In this particular case, Mr. H. T. Hare's reputation as an assessor, together with the very fair and straightforward conditions, no doubt helped to swell the number of competitors. The building will comprise a news-room, magazine-room, reference-room, ladies' room, and lending library, with the usual staff accommodation. The site is at the corner of Lichfield-road and Bailey-street, the angle of the building facing the main street of the town. A number of the competitors made the Lichfield-road front the main one, but they had evidently not visited the site, and their designs had no chance whatever. A peculiar feature of the requirements was that a counter 40ft. in length was to be provided in the lending library, which seems unnecessarily long when the number of volumes to be accommodated is only 12,000.

THE SELECTED DESIGN.

When so many designs are submitted for such a small building, quite a number are naturally very similar, and have little to choose between them; but the selected one, by Messrs. Briggs, Wolstenholme, and Thorneley, of Liverpool, certainly appears to be the best. The plan is simple and straightforward, and the elevations, in the Neo-Greek style, are broadly treated and to a good scale. The 40ft. of counter has been cleverly worked in, though it would be an improvement if the sides were straightened, the loss of length being compensated for by providing a flap instead of the doors, as shown. The building is admirably arranged for supervision by a small staff, although the entrance and staircase are not, perhaps, very well controlled from the lending counter. On the whole, however, we think the competitors will be satisfied with the selection of this design.

MESSRS. SUTTON AND GREGORY, who were placed second, also submitted an

excellent scheme. On the first floor, however, it was not so good as that of the winners, as it had rooms fronting to both streets, which necessitated a somewhat wasteful shaft or corridor to connect the two wings.

THE THIRD PREMIUM

was awarded to Messrs. Castle and Warren for a design of which the best part was the elevations, which showed a quiet and simple brick treatment, and certainly looked more like being done for £4,000 than did the majority of the designs, some of which showed huge clock-towers or rows of detached columns, etc., this, although the most compact design, worked out at little over £8, per cubic foot.

MODERNISM AND AUTHORITY IN ARCHITECTURAL DESIGN.*

By W. HOWARD RETH SMITH, Fellow and Past-Examiner of R.I.B.A., Past President and Member of Advisory Council of Education of the Architectural Association of London, Member of Board of Studies on Architecture of the University of London.

As Englishmen we rejoice in the liberty which the Renaissance and Reformation purchased for us, and see reflected in the diversity of sect the beauty and variety of the human mind and the inestimable value of even in giving expression to some particular truth which, though possibly one-sided, needs emphasis. This diversity of mind has its counterpart in art and its expression in schools equally varied, but all giving point and force to some phase of human emotion, and, as a result delivering us from tedium and intolerance. This attitude is peculiar to the Anglo-Saxon race. As Prof. Flinders Petrie and others have well said, the only bad art is that which fails sincerely to express individual and national emotion. This definition excludes all mere repetition of past or present forms, without due consideration of their purpose, suitability, or beauty, as such qualities appeal to our imagination and taste. It also establishes the proposition that the simple cottage, no less than a Parthenon or a Gothic cathedral, may be a perfect work of art, and supports the statement that all striving after mere picturesque effect which does not express and emphasise with due subordination and reserve the purpose of the building, stands condemned. Out of the welter of negative design brought about by universal travel and progress of illustration, we have emerged to find ourselves prepared to adopt one of two alternative schools of architectural thought—namely, Neo-Classical and its reaction, termed the secessionist movement, which I venture to term "modernism." I use the term Neo-Classical as having reference to the revived conventional Classic of Greece and Rome, and the term modernism as encouraging freedom to adopt other traditions or none at all. Upon the attitudes of all of us, but especially of our students, towards this question depends very largely the future of architecture in, and far beyond, the Isles of Britain, since what we teach and learn here we practise in a world-wide Empire in which our buildings must be the expression of British ideals and British spirit.

We protest against the tendency to stereotype the Classic ideal, and see a deadly enemy to flexibility and versatility of mind, and a lack of any natural character. We are needed to deal with the modern, the experimental, and with home conditions as well. So, entirely has Classic design dominated the two most artistic countries, France and Italy, for the last three centuries, and the tradition of Medieval architecture has been preserved and achieved its greatest triumph in the famous chateau, has become completely a *passé*—*quo* *modo*—and we have to find an extraordinary modern scheme to suit the modern century, and the modern building. Mr. Bernard Blomfield is a scholar in his realm and scholarly in his French Renaissance taste, but not the student of Francois I. Classic tradition has

been consolidating, and that the tradition of Gothic died out early in the 17th century. The reasons given by the Classic school for these two facts are that Classic stood for all that was purest and best in architecture, and that the spirit of reason and freedom which lay at the root of Greek and Roman civilisation, and in its 16th-century revival, could best be emphasised in the style which was its original expression. Seeing, moreover, that the Medieval spirit had passed away, its corporeal expression naturally disappeared. The point I want to raise for the purpose of discussion to-night is: Whether the French, whose example is being followed very generally, are right in pursuing exclusively the Classic tradition, or whether we, who still persist in an eclectic and more empirical course, are more likely to be acting in the best interests of architecture? In the first place we may at once dismiss the question of the evolution of a new style. It is clear to all of us who have eyes to see that the adoption and steady pursuit of any one style by a large number of architects, acting on right principles, is bound to have this effect. We have only to compare the 16th-century Renaissance work in France with that of the 18th to assure ourselves of this fact. Modern French architecture is quite distinctive in style; but I submit for your consideration that in some respects their policy of training in the tradition of a uniform style is a lamentable failure.

The Renaissance embodies the idea of individual freedom, and freedom of thought is the root of all progress in art, as well as in other realms of human action. Visual art is the expression of the emotions in architecture as well as in painting, music, and poetry. "Modernism," "Art Nouvel," "Secessionism"—term it what you will—in architecture, are nothing more than the exercise of the spirit of liberty. "Authority" is synonymous with academic precision, with dogma. The Anglo-Saxon genius rebels against the tyranny of the latter, and hence the powerful continental secessionist movement in Germany and England. The secessionist ignores nationality and individuality, and aims at a universal expression of one set of emotions in a stereotyped art. The secessionist aims at liberty, even at the cost of tolerating license. What is to be our attitude towards these apparently antagonistic schools of thought? The history of modern town planning is eloquent in its answer to this subject. The earlier schemes, which sought everywhere to impose a Classic and strictly symmetrical layout, have been abandoned, and the tendency now is to conditioned irregularity. Let us admit most cordially that no art which is not scholarly can expect to appeal to modern civilisation. This admission excludes all unqualified individuality. As Ruskin has said: "What is needed is not to teach the body of the people to know something of art, but to teach the artists of the nation to know something of other things. It is not to give an artist's education to the populace, but a gentleman's education to the artist." We said just now that progress in architecture, even a new style, will naturally, and without conscious effort, be evolved conditionally on a body of experts acting on right principles. What are those principles? They may, we think, be stated thus:—

(1) The thoughtful application of the structural principles which all great architecture has been based on.

(2) A scientific application of new methods of building construction.

(3) A careful observance of the natural laws which govern our design; such, for instance, as the degrees of sunlight, the rigors of winter, or the heat of summer, the prevalence of earthquake, etc.

The observance of the aesthetic laws which govern the design of the greatest works of architecture, such as rhythm or mass in form and colour, repetition, rhythm, symmetry or balance, and grouping, proportion of parts, light and shadow.

(5) A rejection of mere decoration which does not express, emphasise, or refine our requirements.

The man who can work on these lines must be a scholar, and if he possesses the instinct of the artist he will be an architect who makes for progress. Let us apply these principles alike to the Parthenon and to Westminster Abbey, or any other great Gothic cathedrals—buildings which, by common consent of mankind, are masterpieces of our art, and say which tradition, Classic or Gothic, is the more worthy to be revived and followed on, may analyse the St. Sophia and St. Paul's cathedrals, and the evidence will discover why they, too, have set the standard of highest achievement, the latter in spite of decorative insincerities. Each of these great works is but the culmination of the continuous and experimental application of these principles over a long period, generally of centuries. In short, they are the outcome of tradition followed by a legion of learned, thoughtful, and free men who co-operated for their own inventiveness and reputation, but for that of their predecessors. Many of us have yet to grasp the fact that while we must have a knowledge of the past, we ought to learn even more from our contemporaries than from the ancients. And I think we shall find that it is to tradition in building construction that we owe progress, rather than to tradition in ornamental expression. The latter has always, and very rapidly, been modified, or even revolutionised, by contact with other decorative fashions. The knowledge of all decorative forms which we possess naturally tends to break down traditional forms, and hence forces us to experiment in new.

May we now glance at modern work and endeavour to see how far the academician, on the one hand, and the secessionist on the other, are doing well, or ill, and what result. We may take for granted that, notwithstanding the immensely more complicated nature of modern requirements, simplicity of arrangement in the plan is still attainable, and the elevations of such a plan are capable of equally good treatment, whether controlled by Classic symmetry or by the Gothic spirit of freedom. I hope, however, that none of us should accept in my proposition that architecture (apart from decorative forms) has comparatively little to do with the religious, social, and political conditions of the age in which they flourished, notwithstanding that these sentiments and enthusiasms may have produced the need for the buildings themselves, and, by dictating the accommodation, have set constructive problems for solution. No one can reasonably hold that these conditions have ever approximately alike in the age of Pericles or Augustus and Constantine, and those of the Italian or French Renaissance, although the principles of design adopted were the same in both periods. Nor is it logical to argue that if we elect to base our modern ecclesiastical design on Gothic tradition we shall (notwithstanding the totally different ideals of the day) fail to produce a work of equal merit. Such buildings as the Houses of Parliament or the new Liverpool Cathedral, and many other churches of less pretension but equal merit, directly contradict such an assumption. It is paradoxical, but true, that the Medieval age, free and flexible in its architecture, was pre-eminently that of religious authority and dogma, and that the ages of the Gothic and Neo-classic, which represent convention in architectural work, were those of intellectual freedom. Compare the symmetry in plan of a great Gothic cathedral with that of a palace like Blenheim or Castle Howard; in the former the spirit of freedom has met a most complicated problem with symmetrical perfection, while the hide-bound Classic has sacrificed the essential needs of domestic convenience to the dogma of inflexible symmetry. The symmetry of the cathedral recalls the form of a beautiful tree, one in which the opposing natural forces have resulted, not in rigid uniformity, but in a balance so beautiful and full of interest as to compel us to draw it. And why is it that the same impulse seizes us when confronted with a building treated in the Gothic spirit—scarcely otherwise?

We will not briefly review the work of those who have rebelled against Classic authority. In Germany a very formidable movement exists which has secured alto-

gether from academic teaching, and some of the work produced by the more able and more moderate spirits in the great German towns is full of promise. It is suited to its purpose, good in its proportion, broad and dignified in its masses and outline, picturesque, balanced in light and shade, refined and expressive in its handling, and reserved in the distribution of its ornament—in short, manifests all the qualities of good architecture. In the architectural schools connected with the universities of Germany the best practising architects of the day are the professors of architecture, and among them are apostles of this secession. Everywhere in the main towns may be seen this impatience with academic design, a thoughtful optimism and courage in the adoption of new forms suited to new materials, and while we must lament and condemn its abuses, we must freely admit its virtues. This movement has been largely leavened architecture in Austria, Scandinavia, and Finland. Why is it that the works of the moderate and scholarly men of this school at once arrest and hold our interest? In some instances they do not appeal to us as the Classical, but they are thoughtful and inventive. It is not because they express individuality as well as knowledge, and a preference for national tradition? And there is no reason why this modernist school should not, at a later stage, evolve great works of combined art and science. In the case of the conventional school the mind is unable to foresee any further progress than a skilful shuffling of historic features, which may have the merit that they do not shock or offend cultivated taste, but which arouse no enthusiasm, express no modern sentiment, and have long lost their own.

We venture to submit to this meeting that the secessionists, as represented by their more scholarly and moderate men, are working on the lines which produced all the architectural masterpieces in the Western world, and that their masterpieces were not isolated efforts of an individual, but the result of a band of masters working on the same traditional lines, both instructive and ornament, not copying architectural features, caring only for that which interests them most in the creations of their contemporaries, and endeavouring to improve upon it. It was all they knew, and quite sufficient for them. It only remains for this school to persist, and we are sure to get a living and beautiful style of architecture. Ruskin's teaching may not always be reliable, as applied to architecture; but happy the artist who has once revelled in the thoughtful and poetic spirit of that great teacher, and happier still the architect who has been trained in the traditions of Medieval architecture. Once a master of this tradition, he can never again can be closely tethered to the area of conventionality. He may gravitate towards greater severity of form, but his work will manifest individuality, and he will never be guilty of sacrificing the picturesque which so pre-eminently suits our Northern character and environment, and without which our streets, and especially our skylines, become so painfully monotonous and unimpressive. What would our villages be without their Gothic parish churches and their Elizabethan manor-house, the City of London without its towers and spires, or Westminster without its Parliament Houses? And why is it that an architect well trained in the Gothic school can effectively practise in Neo-Classicism, while the man whose education has been exclusively Neo-Classical cannot design decently in Gothic? Wren, for instance, is this feeling for picturesque which, more than anything else, embodied the Anglo-Saxon genius in Wrenian architecture—the Medieval spirit engrafted on the Palladium stock. Shall we abandon the tradition which gave us our cathedrals and parochial churches, the towns of Oxford and Cambridge, Rothenburg, Kildesher, and Chester, or a Haddon Hall, Hatfield House, and so on, like architecture? And how can we reconcile this eclectic practice with the essential need of continuity of one tradition, held and exercised by a large school?

It was the dread of Classic uniformity which led me to suggest this subject, when requested by your President to read you a

paper. Do not suppose me to hold an exclusive brief for Medieval art! No man knows better than I how to appreciate the fine Classic designs of all countries and all periods, including present-day Georgian; one recognises its impressiveness, as applied to important civic and monumental purposes. I desire, however, to insist, that, if it should be allowed to monopolise our studies and control our practice, to the exclusion of styles which, after all, handled with skill, are more flexible and versatile in solving the complicated problems of modern civilisation and our religious ideals, and which, moreover, are distinctly English in origin. Did every attribute of greatness in Greek work—dignity, symmetry, rhythm and proportion, light and shadow—ever rise higher than in a Gothic cathedral? Is there no ordered and organic thought, no reserve or restraint, in St. Sophia or Chartres Cathedral? Surely we have in these buildings fine planning, fine proportion, fine scale, mass and simplicity in phrasing, and selection in ornament: qualities often quoted as exclusively characteristic of, and supporting the Classical and Neo-Classical styles, the "purity" or refinement of Greek ornament, and it is, therefore, an essential subject for study; but we must recollect that a Greek building, as regards its plan and construction, was the most elementary of all great European styles, and, therefore, is least adaptable to modern requirements. In Byzantine times, however, under the inspiration of the Greek constructional methods, the Greek genius for beautiful form reversed the curves of the ancient capitals, threw to the winds the Periclean ornament, and devised something equally beautiful. The quality of exact symmetrical planning, so specially characteristic of Classic design as to dominate their smallest buildings, may be suitable in monumental architecture, but we know the absurdities to which it inevitably led Vanbrugh and his school in devising the great houses and palaces of the nobility, and all of us who have set ourselves the problem of designing a good country house, strictly on these principles, know also that it means sacrifice of comfort, convenience internally, and often of beauty.

We see this standardising tendency in those who wish to model our schools of architecture on the lines of the French schools. In these French schools no encouragement is given to Gothic architecture, and we have already commented on the evil effect of this scholastic intolerance on the vast amount of work which is the main expression of the domestic, educational, and religious character of the nation, and which constitutes the life-work of the vast majority of architects. Everywhere throughout France one sees in modern domestic work its baneful effect in a pretentiousness, born of the academic and monumental system of training. The Neo-Classical Style is not plastic enough to be suitably applied to humbler and rural architecture, excepting in the freest manner, such as is exemplified in our brick houses of the Queen Anne period. In our more important works I am convinced that in the future our Neo-Classical schools must devote their attention to scientific building construction; for in that, as in the history of the past, lies the basis of fresh development of architectural form, which shall be free from all affectation and insincerity. Steel and ferro-concrete are to play a great part in the future of our art. These new methods must be studied closely and adopted frankly where they facilitate our expression of economic means. We are not ambitious to see the streets of our great towns lined with the "skyscrapers" of New York fame; but we cannot deny that here, at least, is a perfectly new style of architecture, full of intense interest, and, in the best hands, treated not only with sincerity, as expressive of their purpose, but often with considerable beauty, and largely free from all traditional ornament. These are the outcome of the special conditions applying to the limited land of New York; they afford a lesson rich in teaching to all of us, and we commend them to the consideration of our municipal authorities, as probably modifying their by-laws in the future, as the land in the centres

of our great commercial cities becomes more and more valuable. These steel frame and ferro-concrete buildings are the product of an exact science of construction, and an carcass can only be designed by engineers, who have a full life in mastering the mechanical problems. It is as obviously impossible for the artist to master the mathematical science required to construct such a building as for the engineer to become such a master of beautiful form as, with the magic wand of the artist, to make it a thing of beauty. I claim even for a "skyscraper" the possibility of the possession of all the characteristics constituting good architecture. It is one of the most interesting architectural problems of the age, and is bound to affect architectural study and practice throughout the world. The language of engineering is the language of reason; that of architecture is the language of beauty. Reason and beauty surely form a happy co-partnership—a marriage which is the parent of architecture, and one which may, in the near future, be expected to affect the constitution of our larger office staffs, as it has done in America. Within the last ten years we have vastly improved and systematised our methods of education, and, happily, on the whole, we seem to be proceeding upon lines characteristic of our British independence of foreign ideals.

That the Education Board of the R.I.B.A. is doing excellent work is evidenced by the recent notices of changes in the syllabus of studies recommended for the schools throughout the Empire, in preparation for the Institute's examinations. Examinations wisely controlled are highly useful in systematising study, and we have not only accepted the proposition that the training and examination of architects should be in the hands of practising architects, but all our universities (with the one exception of Cambridge) as well as our other schools of architecture, have endorsed this proposition by adapting their syllabuses to these progressive examinations. This Board is composed of architects who have not only attained eminence in practice, but have had experience as educationists, and their scheme for co-ordinating the training should be, and, I think, is, based on the following principles: (a) Above all things teach the student to observe, think, and invent, rather than to cram and copy. (b) That a sound general education should precede entrance to professional training. (c) That the course of instruction should be progressive, commencing with elementary design and construction, and leading up to an honours, or post-graduate, qualification. (d) That the intimate association of construction and design, as exemplified in the history of the schools of architecture, and inculcated by means of the school atelier and lecture-room in close co-operation, should be insisted upon throughout,—design and draughtsmanship being emphasised as essential elements of architecture. (e) While the school course must necessarily be largely general and theoretical, the office course should supply the more practical part of the training, but every encouragement should be offered to the student to devote to drawing. Such educational principles ought to command the confidence of all the schools, but they clearly controvert the theory of training exclusively in Classic, or of encouraging the students to commence their course with advanced monumental design.

It only remains for me to plead that in these schools of architecture we should insist that every student should have the study of Gothic and English Renaissance, as well as to Classic tradition. In ecclesiastical work the former tradition has, with the exception of a comparatively brief period, been continuous in this country, and has of late been revived with extraordinary success. Church building is as active to-day as it ever was, and very beautiful and original work is being done. We have, however, no given country. We feel that it would be not a short of a disaster to art were our schools of architecture to cease to encourage special training in this style. The only argument which can be advanced in opposition is that in view of the complex requirements of a student has no time for both. Our reply

would be the generally approved system of education, the elementary training is wide and precedes the more advanced—the general, the specialised—and that following this common-sense and universal principle, the early courses in our architectural schools must make the student acquainted with the principal English styles in a general way, leaving him to follow his inclination or opportunities to specialise on later. The course in which the student does not lead to specialisation, early practice will do so, accordingly as he is commissioned for domestic, ecclesiastical or civil work. Under this educational system a large number of men will be found to be carrying on the traditions of each of the following styles: say, Medieval for churches; Tudor, Elizabethan, or Queen Anne for domestic Georgian for civil. By instinct and by training they will be specialists, just as medical men, lawyers, and other professional men group themselves and specialise in various departments of knowledge and experience. Specialisation is the only logical and practicable solution of the multifarious demands of a complex civilisation.

There is no fear of failure so long as our architectural schools encourage and our employers proceed on the right lines. They must insist, and always, in a progressive training which enables them to design a simple cottage or village hall with enthusiasm and delight. We are too hasty, too diffident, too pessimistic. Such a system of professional training has characterised our English schools so far, and is perfectly consistent with a higher course either at home or abroad. A school or Bureau of Architecture can afford the time and means, for designing on a monumental scale. A large majority of our students will not be able to take this special course, and seeing that the same general principles of design apply to all classes of practice, the men who have devoted their whole course to the mastery of less ambitious studies will do their special work all the better, and the more advanced will, of course, generally earn off the plums of practice, whether by special appointment or in competition. We would offer one other note of warning—namely, that non-university schools of architecture should, while endeavouring to raise the standard of their students' general education before entering upon professional training, be careful not entirely to exclude men whose special conditions may have afforded them special advantage, and yet may be brilliantly endowed for our calling.

We touched, in an early part of this paper, on our Imperial responsibilities, and it is a question worth the consideration of our teachers whether those who, English, foreign, or natives of our dependencies, have decided to seek their fortunes abroad, say in India and Egypt, must not be able to take a special course in Oriental expression, and thus be fitted to combine the constructive principles of the West with the indigenous forms and traditions of the East. It would be as impolitic, as inconsistent with our past and present policy, in the various spheres of our influence in India, Egypt, China, and elsewhere, to force an exotic and Northern style on these countries. Our policy should rather be to study and adopt all that is suitable in their indigenous architecture, yet giving it the impress of our freedom of thought and the impetus of our vastly superior structural methods. True, it will not be Indian or Chinese architecture, but like that of Sicily, it will be the permanent and eloquent record of our influence or dominion. In the light of these responsibilities we comment to all English architects the study of the Norman Saracenic architecture of Palermo. In a recent issue of the *Builder* the following note occurred: "In a country as vast as the East Indies it is inevitable that the native traditions of workmanship and decoration must be relied on in the execution of the great majority of the buildings undertaken, and if these conflict with the conception of the architect, the result cannot but be chaotic and unsatisfactory. We ought, therefore, to recognise native workmanship as an essential factor, and as there is a strong and definite artistic

tradition, with numerous skilled exponents still in existence in the East, the imported architect will achieve far finer results by basing his conceptions on this than by trying to impose alien and exotic forms on the native craftsman." Native schools of architecture are certain before long to be formed in India, China, and the Colonies, for which, at any rate for a time, English architects will probably be appointed the professors. To sum up. Modernism—the spirit of freedom—is the driving force of all growth and progress. Scholasticism or tradition is the element of law and order which is essential to curb ignorant and unbridled individuality that anarchy and chaos which is responsible for all the architectural monstrosities which have ruined our towns and villages, and which our curious popular English aversion to experts tends to encourage. "Excessive individualism means energy without order; excessive socialism, order without energy." It is the task of our professors to teach the true relationship of these complementary forces. Let us neither encourage the monotony of cultured mediocrity nor endure vulgar originality.

THE IMPROVEMENT AND DEVELOPMENT OF LONDON.

The inaugural meeting of the London Society was held on Friday evening at the Galleries of the Royal Society of British Artists, Suffolk street, Pall Mall, under the patronage of Sir Aston Webb, C.B., M.V.O., R.A. A number of letters (of sympathy with the objects of the Society were read by the hon. secretary, Mr. H. J. Leaning, the writers including the Earl of Plymouth, Lord Claud Hamilton, M.P.; Lord Alexander Thynne, M.P. (chairman of the Improvements Committee of the L.C.C.); the Bishop of Oxford, Sir E. J. Poynter, R.A.; Sir W. B. R. Mond, R.A.; Sir Alfred East, R.A.; Sir John Lubbock, R.A.; Sir W. H. Lever, and Sir Herbert Tree.

The chairman said the promoters of the Society wanted to create a public opinion which would support public authorities in carrying out different schemes which might appear to be beneficial for London as a whole. The artistic side of the management of London had received comparatively little attention, and it had been thought that if painters, sculptors, architects, and architects, members of Parliament, all men interested in art, should discuss these matters, and so inform the public from time to time, by degrees works of which London stood in urgent need might be carried out. The management of London was cut up into so many parts that it was difficult for anyone to think of London as a whole, and see what it required. His work had brought him in contact with many borough councils and Government departments, and he was perfectly convinced that the desire of all those bodies was to do the best they could for London; and if they were backed up more by public opinion they would do a great deal more than they could at present. They would want the counsel of the very best men in London, and the assistance of such bodies as the Royal Academy, the Royal Society, the Royal Society of British Architects, the Institution of Civil Engineers, and the Arts and Crafts Society. Whilst the artistic as well as the utilitarian received consideration from those responsible for the government of London, it was a fact that would hardly be denied that the utilitarian had prevailed. The aim of that gathering was a big undertaking, but that was no reason why they should not make the attempt. London had a beauty of atmosphere and colour all its own, and they should endeavour to get the public to realise the beautiful things there were to see in the Metropolis as well as the terrible things there were to be found, for in some places it seemed absolutely impossible to ask humanity to lead cleanly, godly, and healthy lives, and such places should be swept away. Town planning schemes were springing up all round London, and if they were carried out without reference to one great central scheme confusion would arise.

Professor Beresford Pile, F.R.I.B.A.,

moved the following resolution: "That this meeting heartily approves of the formation of the proposed Society, and recognises the need for united effort on the part of those interested in the welfare of the Metropolis, in order to advance the practical improvement and artistic development of London." He said that London had suffered terribly from the untrained enthusiasm of its lovers and from want of foresight in public works. There was needed a quickening of public opinion as to the amenities of life in London, and the organisation of that expression of opinion. Another of the needs of London was pertinacity, so that when a great ideal was set forth it should be carried out. When the question arose of opening up the view of St. Paul's or of Southwark Cathedral London suffered from the want of well informed opinion of what London might be, and what it should be.

Mr. Harold Cox, in seconding, protested against a suggestion in a letter by Lord Alexander Thynne that the public eschequer should be made responsible for the improvement of London, which was rich enough to take care of itself, and did not need to be subsidised by poorer people in the rest of the kingdom.

Sir John Bann, in supporting, said he hoped financial considerations would not deter those who were pushing that movement. As a consequence of the fear of the ratepayer London was left to a hugger-mugger Government.

Sir Thomas Brock, R.A., also supported, and said that there was no lack of intelligence when great undertakings were initiated in London, but usually the artistic side was not considered because it was suddenly sprung upon us. A society such as that suggested would be able to meet a difficulty with valuable advice to the authorities at the proper moment.

The resolution, to which Mr. R. Davidson also spoke, was carried.

Captain Swinton moved a resolution authorising the existing committee to draft a constitution and to call a meeting to decide on further action. Mr. W. D. Carver, F.R.I.B.A., F.S.A., seconded, and the resolution was carried.

ARCHITECTS FROM GEORGE IV. TO GEORGE V.*

By MAURICE B. ADAMS, F.R.I.B.A.
Making an end of his preamble, Mr. Adams continued: The tale at the outset is less easy to tell owing to the "Period of Parenthesis" due to the decadence of the Classic school having been concurrent with the incipient efforts of the "Gothic revival," the one expiring in the cold wane of yesterday's moon, while the other's advent anticipated the next day's possible sun. Taste owned no standard, the results were unequal and divergent, much of the exhilarating, for the time being, marked a break and a transition. Architects tried their hands at both styles, and set to work wrongly by adhering to Pagan plans while covering their exteriors with lifeless details shorn from Medieval precedents. The latest new cult, having got tired of "Late Renaissance" gush over the "monumental manner" of Farmer George's days, fettered as they were by the shackles of social mediocrity. The torrent of literary activity which burst forth in the reign of Queen Anne had little in common with the native talent for art, which then remained comparatively dormant and distinctly uninspiring. Our artistic shortcomings may even still suffer from our insular independence; but there is a gain associated with Anglo-Saxon prejudice and individuality. The importations of early French and Italian Gothic were only of short duration, and some are saying that the French Renaissance is exercising a steady influence now; but the movement is exotic, and the femininity of Latin Parisian taste is little likely to supplant British muscularity. The marked tendency towards French art which arose about the middle of the 18th century accomplished little inter-

*Abstract of a paper read before the Glasgow Institute of Architects, Feb. 14, 1912.

change of fashion between the two countries, though Scottish architecture was impressed much more, as happened previously in the earlier Renaissance and Flamboyant Gothic.

The manners and morals of the age from whence we are starting had degenerated, and times were not particularly brilliant in 1821, when the "First Gentleman in Europe" ascended the throne; so in order to take our bearings it is requisite to glance back even so far as Stuart days to properly adjust the antecedents of Early Victorian art. Evolution in design had spent itself by the time of George III. No tradition worth mentioning remained, and our most accomplished achievements henceforward were due to individual example. Academicism had reigned long enough. "The Neo-Classic period," which has been divided thus, extended from 1666 to 1820.—The Formative period, from 1666 to 1720; the Palladian period, from 1720 to 1780; and the Formal school, which ended in 1820. War and fire have generally contributed to the advance of architecture, and since the era of the Middle Ages the one outstanding event which had the most immediate influence upon subsequent building art in this country was the Great Fire of London in 1666. Wren thus was given his opportunity, and although the governing authorities then failed to realise theirs in not adopting Sir Christopher's plan for the layout of the Metropolis, the great thing that did matter was his rebuilding of St. Paul's and his many churches in the City, not forgetting Greenwich Hospital. The second conflagration to be mentioned as of architectural import was the burning of the old Houses of Parliament in 1834. These two events, coupled in this way, define the beginning and the end of the "Neo-Classicism" of English building. Till the turn of the tide of fashion towards the closing years of the last century indigenous architecture had associated more or less with the "Gothic revival" style of the continent indeed was devoted fifty years ago to Classic work that it would have required an inspired prophet to have foretold this change which our children have witnessed, and no one could have thought it probable that the praise of Soane and his school would find expression in the early days of the 20th century. Belcher and Macartney's book on "The Later Renaissance" helped to bring about this swing in the pendulum. Long prior to the Georges, colour, and grace had succumbed, and art was glacial. Houses were grey, with flat roofs and hopelessly dull interiors, although some of the better sort exhibited a somewhat architecturally contrived plan, recognising vistas by making one room lead out of the other. A reaction so early as the dawn of the 19th century evinced signs of activity; but so little was generally spoken of as "the English style," ignoring the architecture of Europe. Wyatt was building Fonthill Abbey, known as "Beckford's folly," on an enormous scale with puerile and petty detail; but an advance was registered when John Shaw erected the clever church of St. Dunstan's-in-the-West, in Fleet-street, and added a respectable deception to Christ's Hospital in so-called "Gothic." The new courts of St. John's College, Cambridge, described as "a monstrous pile of ugliness," were put up by Thomas Rickman, the Quaker, to whom we owe the invention of the neoclassical style of the English periods of architecture in his "Attempt to Discriminate," published with "The Classic Orders" as a preface, in 1819. Porden had built Eaton Hall, and Atkinson, a pupil of Wyatt, carried out Abbotford for Sir Walter Scott. Augustus Pugin, with Le Keux, informed the educated public by their illustrations of Normandy and other Medieval works thus paving the way for the turbulent crusade against Pagan inconsequence, so vigorously undertaken by Welby Pugin, whose graphic "Contrasts" and "True Principles" did so much service later on. His energy was attributed to what "Classicists" called his "Whimsey," while his critics applied to him the sobriquet of "Smell-fungus," and so "the battle of the

styles" began. Anterior to that event there lived, quite apart from this battlefield, a delicate and physically fragile individual of retiring temperament, devoid of technical training, who single-handed wrought a revolution by discovering and popularising the charms of the picturesque in such common things as old cottages, and so opened up the possibilities of simply belittling countryside domestic architecture by which English architects made a world-wide reputation long years after Samuel Prout, the man I mean, had been forgotten and reckoned as a bygone. What man of his century dreamed of the exquisite beauty existing in the unsophisticated, tumble-down, neglected smaller Tudor- and Stuart-built dwellings of the husbandman before Prout made his brown-ink and reed-pen "dotted and blotted sketches"? Piranesi, no doubt, and Rembrandt, too, with such studies as his "Well" had extended influences, like Cotman and others, towards a truer appreciation of the higher forms of architectural picturesqueness, and Piranesi's Baroque compositions told in an imaginative direction. "The Beauties of England," edited by Britton and illustrated by Prout, filled a mission in the way I have indicated, at a time when our forefathers displayed an intense ignorance of architecture. Piranesi had a hand in illustrating the famous book by Adam on "The Palace at Spalato." He issued ten years anterior to the birth of Prout, when Bartolozzi did the engraving, but this work was beyond the range of ordinary people.

At this time in France the reign of sound and considered Classic, inaugurated by François Mansart, who flourished at the same period as Inigo Jones, had well-nigh run its course, and things were shaping architecturally towards the chilly, pompous style of the Empire, which in a way was based on Augustus, James Wad, of Bath, and Le Roy. Paris, France, exhibited the spirit of the movement in design which found expression in French buildings designed by Gabriel, also in London and Edinburgh by Robert Adam, the most tasteful architect of his day; but his manner, for varied reasons, failed to find many imitators. Thomas Leverton was associated with the lay-out of London squares. Sir John Soane, the master of commonplace Greek, and professor at the Academy, designed a scheme for the House of Lords, was much in favour, erected the Bank of England, and left a most excellent museum. John Gandon, pupil of Sir Wm. Chambers, displayed a much higher capacity when he won the competition and built the Custom House and Four Courts at Dublin. The expiring embers of the 18th century had not been extinguished without a sudden flash of the Baroque, the Rococo keeping concert with the vagaries of the Ornamentalists, who fancied architecture consisted of so much arabesque and fancy as to favour the term. They published pattern-books, and, seeking inspiration from Peking, also introduced red lacquer work for furniture and decorations. The culminating extravagances of George IV. were encouraged by John Nash when building the Regent's plaster-fabricated palace known as the Royal Pavilion, Brighton. This represented the vogue for extraordinary diversions which was thus exploited; but it was not at all vulgar. We know the building thoroughly, having added the public library and art galleries out of part of the old shell. At the period of which we have been speaking, houses of quality had Watteau panels and decorations framed with a fantasy of scrolls and ribbons, mingled with toyish birds and ambling monkeys, much esteemed as the height of good manners and elegance personified. It strikes one, in reading about the blatant etiquette and expensive social comedy of Court life in Europe, then, how incongruous the common conveniences of their everyday doings were, and their total disregard of the most elementary requirements of sanitation. The recognition of light and air was equally unthought of in the fusty upholstered, unventilated, pretentious dwellings of society, with their bric-a-brac better suited to the

adornment of a stage wardrobe, though they exhibited the taste of the day. No doubt some of the more stately dwellings, such as the Bishop of London's mansion in St. James's-square, are marked by architectural refinement of plan; and S. P. Cockerell, its architect, was a most cultured man. A few West-End residences of the same decade show the like distinction; but there was a prosaic order and colourless proportion about these decorous façades. James Wyatt, who acquired a big fortune, flattered by Walpole for his Gothic work, following on the Græco-Italian style, designed the Pantheon, in Oxford-street; and Wyattville, R.A., invested, midst Edwardian surroundings, the incongruities of the Empire style at Windsor. His diploma drawing at Burlington House, showing a bird's-eye outlined view in bistre of a mansion for the Earl of Yarborough, dated 1826, is no mean performance. W. Wilkins, R.A., built the National Gallery in 1822, and the British Museum, by Sir Robert Smirke, was commenced in 1823. John Dobson, of Newcastle-on-Tyne, erected the famous station there and laid out the town for Thomas Grainger.

Whatever niche may be accorded to Sir John Soane in architectural history, he will not be best remembered by the boxlike galleried tabernacles which he put up. St. Peter's, Walworth, filled him with such pride that he reproduced it later at Holy Trinity, Marylebone. The church was one of his best, and Walworth in 1824, when it was built, ranked as a fashionable suburb for the residences of merchants. St. Pancras Parish Church by the Luwinds in 1822, famous for its Greek style, of course, leaves Soane miles behind; but then St. Pancras Church cost £100,000, and Marylebone Church cost nearly as much. University College, Gower-street, by W. Wilkins, dates from 1827. Two years later the Travellers' Club displayed a remarkable departure by Sir Charles Barry, who had then returned from Italy fully impressed with the Farnese Palace, and Wolfe, a pupil of Gwilt, had systematised his method of study, inducing him to forego his fancy for Egyptian hieroglyphics covering mural surfaces with enrichments. Thus inspired from Italy, Barry also designed the Reform Club in 1837, and Bridgewater House in 1839, his early but not his ornament. He asserted itself in Barry's Gothic work, which will be mentioned later. Alluding to ecclesiastical buildings, he said—"I found the Evangelical clergymen very fluent preachers, with great ideas of erecting churches for nothing!" Liverpool was ennobled by the building of St. George's Hall. H. L. Elmes, a pupil of his father, being its architect, who died early. By his last wish Professor Cockerell finished the building. Cockerell, for, and was a brilliant scholar architect" and exponent of the higher school of theoretical Classic, erected the Taylorian building at Oxf. rd. George Basevi carried out the structural shell of the noble Fitzwilliam Museum, at Cambridge, and laid out Belgrave-square. Hyde-Park screen witnesses to the refinement of Decimus Burton, the architect of the Athenæum and United Service Clubs, Pall Mall. Sir William Templer commenced the Royal Exchange in 1844, which, it is said, owed a natural parent not recorded in the register. The west side of Somerset House was added a little earlier by Sir James Pennethorn. A considerable influence of façade treatment about this time was due to stucco, one of the most useful and ancient materials; but cements are modern. As Government architects, John Nash, Sir John Soane, and Sir Robert Smirke had a restraining sal of 1800 a year, and was a very work of consequence, was done they were paid three per cent. on the total cost of the building which either of them had to do with. At Buckingham Palace Nash was paid five per cent. after 1826, when the salary was dropped; and Blom had the same when he built the east front in Buckingham Palace, road. Wyattville received five per cent. for his Windsor Castle job, but this included

the cost of coaches to and from Windsor. This expense must have been a considerable item for a man of his style and the conditions of travelling then. Sir Charles Barry made a bad bargain over his fees for the Houses of Parliament, having at the initial stage of his appointment agreed to a fixed fee of £25,000; but at that time the estimated cost was £800,000, exclusive of fittings and furniture, whereas the cost came to about £1,600,000, and the work took almost a lifetime to execute. Pugin was paid £250 a year by the Government to help Barry, who up to 1849 had furnished between 8,000 and 9,000 drawings. He also paid for some 3,000 casts of Medieval ornament. Ultimately, after years of negotiations and petty wranglings on the part of various Ministers of State, he had to be content with £25,000 and one per cent, grudgingly added for measuring, and on the cost of various heating projects which had given the architect endless trouble. Other architects were paid no more, even as in the Pavilion at Brighton, British Museum, National Gallery, and Kensington Palace. Sir Gilbert Scott's fees on the Home and Colonial Offices in Whitehall were five per cent.; but he had to prepare several schemes to satisfy Lord Palmerston, who obliged him to give up the Gothic design by which he won the competition in 1856 as settled by a Commission. The awards really were in favour of H. B. Garling for the War Office and Coe and Holland for the Foreign Office. Scott being paid third, when Sir Digby Wyatt was put in for the India Office. It was necessary to set this here to explain the barest of facts in reference to a controversy extending for years. The cupolas of the Whitehall front have not yet been built, an omission which spoils the building, and is a great injustice to Sir Gilbert Scott. The cost of the Law Courts, in the Strand, came to £871,966, of which amount G. E. Street was paid £35,000, or about 4 per cent. I cannot tell you exactly what the National History Museum cost, and at what rate its architect was paid, owing to variations and deductions; but so far as Mr. Paul Waterhouse has been able to ascertain, five per cent, approximately was the scale of remuneration. This inquiry cannot conveniently be extended to more recent contemporary public works, as the architects might consider it too inquisitive, and with the War Office and War Offices completed by the Office of Works, and the early death of Wm. Young and J. M. Brydon, the application of these buildings as instances in point is precluded.

To judge fairly we must not forget the outlook when the erection of the new Palace at Westminster, aided by the Oxford movement, opened up an opportunity for newer notions. Religious worship inspired the pious poems of John Keble, and the Tractarian influence of Froude, Newman, and Henry Hope gave a progressive power to church and college building. James Savage had some time before built St. Luke's Church, Chelsea, 1824; St. Peter's Church, Brighton, by Charles Barry, followed in 1826; and J. C. Buckler designed Costessey Hall, Norfolk, 1825.

R. Abrahams had built the Middle Temple Library some while when Welby Pugin designed St. George's Cathedral, Southwark, in 1845; and in the same year the Church of St. Stephen, Rochester Row, was built by Benjamin Ferrey. In the year following the erection of St. Andrew's Church, Wells street, by S. W. Dawkes. The Hall and Library in Lincoln's Inn-Fields, by P. Hardwick, date from 1843, though it is said he did not really design them. When the Government advertised the Houses of Parliament competition in 1855 the conditions prescribed "Elizabethan or Gothic." Four premiums of £500 each were offered, and ninety-seven competitors sent in plans. Charles Barry won the prize, and was forty years of age when King William IV. confirmed the award of the Commissioners and elected him architect early in 1856. The Classicists fought against the verdict, and Welby Pugin, who had not competed in his

own name, plunged into the subsequent fray with all the ardour of his enthusiastic temper. Barry and Pugin had previously co-operated when King Edward's school at Birmingham was built in 1833, and it was in that building that Barry discovered Thomas, the stone carver who carried out so much of the work at Westminster. The controversy as to how far Welby Pugin was the author of the Houses of Parliament ended as it had begun—in the conclusion that the general conception and magnificent lay-out of the plan belonged to Barry, and that Pugin carried it. The foundation-stone was laid in 1859.

(To be concluded.)

THE ARCHITECTURAL ASSOCIATION.

A combined meeting of the Architectural Association with the Junior Institution of Engineers was held at 18, Tufton-street, Westminster, on Monday evening, the chair being occupied by Mr. Gerald C. Horsley, R.I.B.A. Messrs. F. Jackman and H. V. Smith were elected members. The President said that it was with very much regret he proposed a vote of condolence to the relatives of their old friend.

THE LATE MR. T. M. RICKMAN,

their senior Past President, and one of the members of the Association in 1847. At the opening of the present session the Council sent a letter of invitation to the inaugural meeting to Mr. Rickman, reminding him that he occupied the presidential chair so far back as 1854, and had outlived twenty gentlemen who had succeeded him in that chair. Mr. Rickman sent an appreciative reply, regretting his inability to be present, as he was just recovering from a very serious illness, which all were sorry to learn terminated fatally last Saturday. The motion was agreed to, the members silently rising to express their sympathy and regret.

BRIDGES.

The President offered a cordial welcome to the members of the Junior Institution of Engineers, who were paying them their biennial visit to discuss the subject of bridge construction. In alternate years the Association paid a return visit to the Institution, to consider some question of mutual interest to both professions. He would ask Mr. Paul Waterhouse, M.A., F.R.I.B.A., to open the discussion on the subject, and invite all present to take part in the proceedings. Mr. Waterhouse exhibited on screens a series of water sketches of bridges in Great Britain and on the Continent, which had been made by his father, the late Mr. Alfred Waterhouse, R.A., and which had never previously been shown. He proposed to put his remarks into the form of a paper, between two friends, and would produce the sketches as lantern slides, to illustrate the points raised in the imaginary discussion.

In a brilliant dialogue depicted as taking place between two architects, John Pargeter, "who possesses to an unusual degree the power of understanding the inner meanings of our historic and ancient art," and Harper, "who is rather too much the slave of fact and of the details," which the design on our space forbid us to give in full, Mr. Waterhouse inquired why it is that the beauty of old bridges fail to impress us. It must be, it was suggested by Pargeter, because familiarity breeds contempt, and, therefore, even miracles cease to be miracles when they are familiar; once included in the realms of Nature they retire from the realms of the marvellous. Still, he contended, architecture would have died in infancy had not the creature who denied it the start the right to perform miracles. In response to his claim that bridges were architectural, Harper said: "I regard a bridge, per se, as a mere constructional problem, the meeting of a special mechanical need by an economic use of the particular material most suited to the special exigencies of the place and the age. My consideration of beauty in bridges leads me to the conclusion that beauty in their case is merely fitness, and that our notions of applying architectural trappings to what is

really a mechanical—in other words, an engineering—device or expedient are generally a wasteful waste of entirely misapplied ingenuity." Pargeter admitted that Harper's first statement gave a pretty complete definition of architecture, but retorted that bridge construction, as usually carried out, was, in the nature of the case, not architecture, but engineering. For the building of so important and conspicuous a fabric an architect—the best that could be found—should be employed as a competent workman, having under him, among many underlings, the best engineer he could get.

"Oh, come," said Harper, "I'm all for giving architects their due; but I should never think of putting the engineer second in a case where the use, and even the beauty, of the structure depends upon that nice adjustment of material to function which only a highly-trained engineer can calculate."

"Then, once more," said Pargeter, "I consider that your ideas on architecture and architects are at fault. Any architect who is worth his pay, by which I mean any architect who is an artist, will never allow himself to be so easily trifled with as you do. The more you do, the more you have just expressed. Architects are expected to have an almost encyclopaedic knowledge; but even the best-equipped architect will, if he is wise, continually consult the chiefs of his little army of craftsmen on the methods which will produce the best results in the lines on which each is a specialist, and that is exactly what the wise architect would do with the engineer. The more the engineer would fall in ungrudgingly with the architect's consultant but still supreme attitude.

The relative positions of architect and engineer which I here suggest involve no possible degradation to the profession—the noble profession—of the constructional engineer." The lecturer from this point proceeded to bring before his imaginary contemporaries a long series in the evolution of bridges, from the rudest of the prehistoric river or deep channel by felling a tree to lie in a line with the opening to be spanned, or eliciting thoughts of bullocks' hide across the stream from tree to tree, to the latest development in cantilever structures. The examples cited and discussed (and shown as lantern slides) included the Roman aqueduct at Nîmes (le Pont du Gard) and the Roman Puente del Diabolo at Barcelona, a bridge known as the "bridge of the Pyrenees" by the military engineers under Napoleon; the Ponte Vecchio at Florence, the Framwellgate Bridge over the Wear at Durham, Conway suspension bridge, the Medieval and not dissimilar bridges at Monmouth and Nuremberg, the Rialto at Venice, an old bridge at St. Chamas, the purely ornamental Palladian structures at Wilton and at Prior's Park, Bath; the boldly conceived Ponte dell' Annunziata outside Florence, that at Limburg, and those spanning the Thames at New and Kingston. The grand bridges at Toledo and the towered structure at Prague were contrasted with that at Charing Cross and "that which exudes from Cannon-street Station like a slug from its loathsome lair." In his closing sentences, Pargeter was represented as saying that art and skill had conquered Nature and forced it to give man all that he desired. "What of the old ever-god and the Divinity that now stood over him? Was there nothing in that thought? And even, apart from this, he said, if you don't care for Christian imagery and take no account of Pagan mythology, you still must have some faith in the doctrine of outward and visible signs. Those "books in the running brook, sermons in stones, and good in everything," that Shakespeare tells of are very real, and to all but the blindest very intelligible, very readable. "Depend upon it," said Pargeter, "every bridge has had a bridge-maker, a pontifex, and every pontifex is a priest, and every priest has his message. Nationality, character, mood, temperament, welcome, defiance, joy, gloom—all these are songs that a bridge can sing. But through them all, and with them all, it sings its life, being, by its mere being, the song of the passing, the song of the river crossed, the song of the coming over, which is an overcoming. And for those that overcome there

is a crown." We two, added the lecturer, came out from Fargate's room and said good-bye. I walked home with Harper. We didn't talk for a space. Then I said, "You rather curbed our friend once or twice; but I dare say you did well, or meant well, in bringing him down to earth. Anyhow, I know he never thinks the worse of you for it." I said this because I thought he might be feeling remorseful. His reply rather astonished me. "I don't care," he said, "what Fargate thinks, but I am sure that in the end he will be perfectly right."

Mr. W. H. Dunn, Chairman of the Junior Institution of Civil Engineers, in proposing a vote of thanks to Mr. Waterhouse, said he thought the visitors had come, expecting to hear a paper on the materials and constructional principles of bridges, and not upon their picturesque qualities. The allusions to the beauties of Charing Cross Bridge had raised a smile; but he should like Mr. Waterhouse to sketch for them a really beautiful structure to carry at a low uniform level over the Thames many lines of railway.

Mr. H. Heathcote Statham seconded the vote of thanks, remarking that they had heard much that evening about the poetry and picturesque qualities of bridges. Architects preferred bridges that had no attempted architectural adornment added to them. The Fourth Bridge, for example, would be spoiled by any attempt to do the skeleton.

Mr. Waldron, Mr. J. J. Burnet, Mr. Percy Young, Mr. Arthur T. Bolton, Professor Philpotts, Mr. H. W. Fitzsimons, and Mr. S. Bylander followed, and the President added a few words of thanks to Mr. Waterhouse, who thanked his hearers.

THE R.I.B.A. AND ARCHITECTURAL COPYRIGHT.

The following report of the Royal Institute Committee on Copyright was presented to the Council at their meeting on Monday, February 5, and was unanimously adopted:—

The Act has amended and simplified in a very satisfactory way the principal clauses relating to architecture in the draft Bill. The amendment to Section 2, proposed by the Royal Institute, is adopted, and the word "plan," which is inserted, appears, with the context "sketch" and "study," to render the architect's position safe with regard to both preliminary and working drawings.

The amendment proposed to the definition of "architectural work of art" in Section 35 was adopted by adding the word "model," the Attorney-General stating that in his opinion the words "drawing plan" were unnecessary, as being covered by the definition of "artistic work" and the amended Clause 2 already referred to.

The vexatious and impracticable dual ownership of copyright by the employer and the architect, which was proposed by the draft Bill, has been abolished, and the copyright in architectural work belongs to its designer, as desired by the Royal Institute. The suggestion (arising out of the dual ownership) as to an amendment of the R.I.B.A. Schedule of Charges, which appears in Clause 4 of our interim report above referred to, may not now be necessary.

The photographing and drawing of buildings is (partially) protected by the addition of the words "which are not in the nature of architectural drawings or plans," this also being an amendment proposed by the Royal Institute. On the other hand, our very moderately worded amendment to Section 9, by which discretion with regard to certain penalties was left to the Courts of justice, was refused.

Registration, as *prima-facie* proof of copyright, which was optional in the draft Bill, is not required at all by the Act; and the amendment proposed by other representative bodies, and supported by the Royal Institute of British Architects, became unnecessary.

We subjoin, in extenso, for your reference the text of the clauses of the Act directly affecting architects, together with an extract from his Majesty's speech referring to the general aspect of the measure.

The effect of the Act may be broadly stated as follows:—

(a) Architecture is formally recognized, under the definition of "artistic work," as entitled to the same protection as painting and sculpture.

(b) The right to repeat or reproduce his work belongs to an architect as from the moment of its first production, whether in the form of a drawing, model, or building.

(c) Although the copyright may have been sold by an architect, he remains free to use the sketches, plans, models, or studies made by him for any purpose of his own, provided he does not repeat the main design.

(d) Measured drawings of his building may not be made or published without his permission.

(e) Copyright subsists for the life of the author and fifty years after his death. (Clause 16 deals fully with cases of joint authorship.)

(f) In the case of work done by an architect in the course of his employment under a contract of service (e.g., the official architect of a corporation), the copyright belongs to his employer.

(g) An architect whose copyright has been infringed is entitled to claim damages, but cannot obtain an injunction to restrain the erection, or an order for the demolition, of a building which has been already commenced.

Your Committee respectfully recommend:

(1) That advantage be taken of the first opportunity offered for revision of the Act, to press, (a) for the amendment of Clause 9, on the lines indicated in the letter of the Royal Institute of British Architects to the Board of Trade of November 16, 1910; and (b) for further protection as regards the publication and sale of photographs of copyright work. It would be reasonable to require the approval or permission of the author in such a matter.

(2) That the thanks of the Council be conveyed to Lord Plymouth and to Lord Redesdale (Hon. Members R.I.B.A.) for their support and defence of the interests of the profession during the debates on the Bill in the House of Lords.

(3) That your Committee, having now fulfilled the terms of their reference, be discharged.

On behalf of the Committee on Copyright,

JOHN W. SIMPSON, Chairman.

ROYAL ACADEMY EXHIBITION, 1912.

Days for receiving works: Water-colours, pastels, miniatures, black and white drawings, engravings, and architectural drawings, Friday, March 29.

Oil paintings, Saturday, March 30, and Monday, April 1; Sculpture, Tuesday, April 2.

Not more than three works may be sent by any one artist. No work will, under any circumstances, be received before or after these specified dates. All works must be delivered at the Burlington Gardens entrance. None will be received at the Piccadilly entrance. Hours for the reception of works, 7 a.m. to 10 p.m.

WHAT MAKES WHITE-LEAD CHALK, AND HOW CHALKING MAY BE PREVENTED.*

By HENRY A. GARDNER, Assistant Director, the Institute of Industrial Chemistry, Washington, D.C.

CHALKING AND REPAINTING.

The chalking of white-lead is one of the evils attending the use of this valuable white paint pigment which the master painter is most anxious to correct. Every fair observer will probably admit that moderate chalking is not objectionable, as it lends a surface for repainting which will quickly receive and amalgamate with the new paint applied, this result being difficult with an old painted surface which is excessively hard or brittle. Excessive chalking, however, which is often followed by deep alligating and gradual

disintegration, should be avoided (possibly, for no matter how good a painter may be placed over a deep checked surface, the result is almost unsatisfactory and unsightly). The writer has recently read with interest a pamphlet which attempts to explain the cause of the chalking that is extended by nearly all pure white-lead paints after exposure to the elements. In the article referred to, some very interesting theories have been advanced, and the object of this paper is to briefly outline these theories and discuss them in the light of the most recent knowledge obtainable on the subject.

Oil conservation or oil substitution.

It has been stated in the pamphlet referred to that the chalking of white-lead is due to the lack of linseed-oil, and that chalking would not take place to any extent if linseed-oil paints were mixed with greater quantities of linseed-oil. From an economical standpoint, it would appear to the writer that if painters were to follow the above suggestion and use greater quantities of linseed-oil than is at present the prevailing practice, the effect would not be towards relief from the present high prices which must be paid for pure oil, and might not only encourage the use of linseed-oil substitutes which have not been thoroughly tested, but actually lead to the use of such substitutes.

SHORT OIL AND LONG OIL REDUCTIONS.

It has further been stated that not only the priming coat of white-lead, but the top coat as well, should receive very long oil reductions in order to form a film which would protect the pigment from the elements, which are the initial cause of chalking when lead is applied with the usual short oil reduction. The application of ordinary white-lead paint has been compared with the application of short oil varnishes which contain quantities of gum with very little oil, the analogy suggesting that the same enduring results which are obtained by the use of long oil varnishes would be obtained if lead paints were reduced with quantities of oil. Commenting on the above procedure, it would appear to the writer that the use of larger quantities of oil than are at present in common use would result in a paint deficient in hiding-power and strength. Furthermore, the comparison of varnishes with paints is not justified, as a varnish which consists of gums dissolved in oil is an entirely different material from an oil in which pigments are simply suspended. Both of these materials must be studied along separate lines, as they are physically and chemically different.

AMOUNT OF OIL DETERMINED BY PIGMENT.

It is well known that linseed-oil—or, in fact, any oil—when spread into a paint film, is not so hard when exposed to moisture as it possesses a very great strength or moisture-excluding power. When linseed-oil, however, has been ground with pigments, the strength of the films is increased materially, and the greatest strength is developed in those cases in which a critical percentage of pigment has been added to the oil. The critical percentage varies with the nature of the pigment, a small quantity of some pigments being sufficient, while a large quantity of others is necessary, to produce films of maximum strength. An average paint consists of 10lb. of pigment suspended in one gallon of oil; but the writer has in mind at present a paint made from 35lb. of pigment suspended in one gallon of oil. This pigment—namely, American vermilion (basic chromate of lead)—is probably the lowest oil-carrying pigment ever produced or applied under actual practical conditions, and to-day, after nearly four years' experience in the Atlantic coast, there it has been subjected to the most severe atmospheric conditions, it is in almost perfect condition, showing absolutely no chalking. Being a lead pigment, and being applied with a shorter oil-reduction than white-lead has ever been applied with, the result would seem to dispose of the theory advanced that white-lead should be applied with longer oil reductions. If the amount of oil, and not

* Read before the Convention of the Pennsylvania State Association of Master Painters, Scranton, Pa., Jan. 19, 1912.

the amount of pigment, should determine the service of a paint, would not a pigment such as asphaltine, which requires enormous quantities of oil, form a paint more durable than white lead or any of the other white base pigments? We all know, however, that this is not wholly the case, and, moreover, we must look at the question in a practical manner. For the hiding power of a paint is one of the most important properties.

HYDRATE AND CARBONATE.

The percentage of lead carbonate in corroded white lead determines its hiding power, while the percentage of hydrate determines the carrying capacity. When the amount of carbonate runs to 80 per cent., the lead has a high gravity, and takes only 3½ gallons of oil to 100 lb. of paste lead to produce an easy-spreading paint that will have good hiding properties. When the amount of carbonate in corroded white lead drops to 60 per cent., and the hydrate reaches 40 per cent., difficulty in grinding is observed, even if additional oil is added. Such a product is likely to harden and become gummy in the package, and, upon thinning 100 lb. of paint, will require six gallons of oil, and the product has only slight hiding power. Corroded white lead that contains about 70 per cent. lead carbonate and 30 per cent. lead hydrate is probably the best grade that can be obtained; its oil-absorption is medium, and its working properties and hiding power excellent.

AMALGAMATION.

The claim has been advanced that the application of long-oil leads in repainting work is desirable, on account of the penetration into the old paint that can be secured for the newly applied paint. Both are gamating to form one solid film. If this phenomenon really took place under such conditions, a cross section of the film produced would probably appear under the microscope as one solid mass of pigment and oil. As a matter of fact, this is not the case.

THE EFFECT OF TINTS ON DURABILITY.

It is very generally admitted that tinted paints are far more durable than white paints. In the article under discussion the claim is made that the increased durability of tinted paints is due entirely to an increase of oil brought to the white paint by the colouring pigments, all of which have rather high oil-carrying properties. As a matter of fact, however, the amount of oil carried into a white paint by one or two per cent. of tinting-colour is too small for consideration, and is quite insufficient to give the result claimed. White leads made by various processes take up varying amounts of oil, 100 lb. of some paste leads requiring only 3½ gallons of oil, while in other cases leads made by different processes require as high as 6 gallons of oil to produce paints of a relative consistency. Upon exposure of such leads, there seems to be no material difference in the way they wear. This result would further indicate the fallacy of claiming that the extra durability obtained from tinted paints is due to the slight increase of oil brought to them as a contribution from the colouring matter used. We must attribute the greater durability of tinted paints, therefore, to the nature of the added tinting pigments and to the differing physical and chemical properties which they bring to the white base.

CARBONATE AND OXIDE PIGMENTS.

The carbonate pigments, such as lead carbonate, zinc carbonate, and barium carbonate, and all chalk when printed out and exposed to the elements. This chalking seems to be a distinct feature of the carbonate pigments. While it is true that certain other pigments, such as iron carbonate and iron silicate, are further more true that the exception proves the rule. Pigments which are not carbonates, but which have other radicals, and which will probably be more readily recognised if called by their trade names, such as red lead, zinc white, litharge, &c., do not possess chalking tendencies, and the best paints which

remain hard and glossy under long exposure. When either carbonate pigments or oxide pigments are reduced with short or long oil reductions, the same conditions hold true. It would become at once apparent, therefore, that if the chalking tendencies of the carbonate pigments are to be overcome and corrected, or the excessive hardness of the oxide pigments is to be reduced, a mixture of the two in the correct proportions should solve the problem. As a matter of fact, mixtures of this type do not become excessively hard, nor do they chalk to any great extent; and although this principle was long ago discovered, and has been used for years by progressive painters, it must be stated over and over again in order to convince those who are not thoroughly familiar with the results of paint tests.

CONCLUSIONS.

After considering the present practice of some of the leading members of the association, and summing up the results obtained from practical tests made throughout the country, the writer has formed the conclusion that the paint best suited to withstand service is a tinted paint made of a proper mixture of pigments, carefully ground together, and applied by a painter; for even the best paint made must be applied by skillful hands, backed by intelligence, if the best results are to be obtained.

SOUTHWARK CATHEDRAL.

The opening, on February 13, by the Lord Mayor, of the new bridge and gates, which will now form the main approach to the cathedral, marked also the completion of the restoration of certain parts of the building itself.

Externally, the bridge and the wall and railing surrounding the cathedral is what is most apparent of the work just finished. The new railings and gates are of wrought iron and simple in design, and replace those put up about eighty years ago, which were of rather an elaborate Gothic design, but, being light and of cast iron, had become irreparably broken.

The bridge is of Portland stone, the paving and steps being of granite. The style adopted is Gothic of the Decorated period. The four large shields on the panels of the bridge carry the arms of the Province of Canterbury, the Cathedral and Diocese of Southwark, and of the Parish Church of Southwark (St. Saviour and St. Thomas). Four small shields on the gate-piers bear the arms of the four bishops under whom the works of restoration and rebuilding of the church have in recent times been accomplished.

The work on the cathedral itself was chiefly confined to the tower, and a very great deal of strengthening and replacing of decayed stonework has been found necessary. A greater part of the external facing and other features dated from about 1820-30, when Mr. Gwilt, the architect, carried out extensive rebuilding work at the church. The facing in many places consisted of inferior stones, very thin, on bed, all of which had to be cut out and replaced.

On the N.E. angle, the turret staircase originally existed to the top of the tower. This was done away with, presumably, when the present pinnacles were erected. The inner face of the old turret stairs was disclosed during the present work, and the more modern angle stones not having been properly bonded in, this corner was found to be particularly weak, and a considerable amount of rebuilding necessary. The new stone used on the tower is Chilmark.

In connection with Mr. Gwilt's work, it is, perhaps, worth mentioning the extent to which he made use of cast iron. The tower is at two levels, elaborately (and effectively) furnished with cast-iron bands, made in lengths which join with a kind of dovetail joint. They are of heavy section, the larger one being about 6 in. by 3 in., solid. They were bedded under the surface, and found to be in excellent condition. The trusses of the choir roof are all of cast iron, and, besides window-frames, the louvers of the heavy windows, and even flashings to the

copper roofs, are in the same material. The trusses and ties are all stamped with the date and the architect's name.

Internally, immediately above the present ceiling, an arched stage of Late Decorated date, which was found walked up, with the mouldings much mutilated, has been opened out and repaired. The ringing-chamber above has been refitted. The bells and frame have been very thoroughly overhauled, rehung, and repaired by Messrs. Mears and Stambank, who also recast the tenor bell, weighing about 53 cwt. The timbers carrying the bell-frame and the tower-roof had to some extent perished, and a considerable amount of work was done in repairs and renewal.

The ceiling under the bells (now the ceiling of the ringing-chamber) was found to be partially original, of Late Decorated date, consisting of oak ribs dividing the ceiling into panels, with finely-carved bosses at the intersections, all bearing traces of decoration. This ceiling was doubtless that originally seen from the floor of the church, whence there would therefore have been visible, above the level of the present tower ceiling, a blank arched stage and a "lantern" stage, consisting of the present lower range of windows, an additional 35 ft. in height, or about 105 ft. from the nave floor.

Other work lately accomplished consists in repairs to the buttresses and pinnacles of the choir, relaying of gutters to the choir, aisles, and Lady-chapel, and new glazing in the choir clerestory windows. Excavations for the new bridge and boundary-walls to the south-east of the cathedral brought to light several fragments of pottery and some tessellated pavement of Roman times. The latter was at a depth of about 10 ft. below the surface.

The architect is Mr. John Oldrid Scott, F.S.A., F.R.I.B.A.; the general contractors for the work were Messrs. Dove Bros., of Islington, and Mr. R. Searle has been acting as clerk of works.

CHIPS.

The names of Mr. Richard Allen, retired builder, of Hope, and of Mr. Edward Blaue, builder, of Unnah, Quay, have been put upon the Commission of the Peace for Flintshire.

The Sheffield King Edward memorial statue is to be erected in Fitzalan-square. It will be of bronze, with a grey granite pedestal and four bronze bas-reliefs. Mr. Alfred Drury, A.R.A., is the sculptor.

The death is announced from Paris in his 91st year of M. Mathurin Moreau, the well-known sculptor, and mayor of the 19th Arrondissement of Paris. Among his works are the group known as "Les Exiles" in the Tuilleries Gardens, the bronze statue on the fountain in front of the Théâtre Français, and "La Fileuse" in the Luxembourg Museum. Mathurin Moreau was awarded a gold medal at the Paris Exhibition of 1889.

The official *Customs and Trade Journal* points out that the rapidly expanding trade of Lagos affords opportunity of substantial business to British builders. The Government expenditure in Lagos this year on new works and buildings is estimated at £68,000, including £15,000 for quarters for officials, £5,000 for a new wing to the Government Hospital, and £10,000 for the Post Office, etc. Further, substantial buildings are taking the place of the shanties and huts formerly used, and a large business might be done with private individuals.

The block of buildings now being added to the Bistol Infirmary on Alfred Hill, which will constitute the King Edward VII. memorial, is now almost completed. The extension has been erected to form three sides of a square, leaving in the centre a large open space to be laid out as gardens for the patients. The two principal blocks that running parallel with the old infirmary, and the other at right angles to it in its rear, comprise: The extension block, to be used principally as an operating-theatre will also soon be roofed in. On the other side of Alfred Hill is the nurses' home, and here the grounds are being prepared so that they will harmonise with the general scheme. The extension block, which is being built from plans by Messrs. H. Prevay Adams and Charles Holden, whose designs were illustrated in our issues of July 30, 1909, July 29, 1910, and February 21, 1911.

CURRENTE CALAMO.

The Committee on Copyright appointed by the R.I.B.A. have presented their Report, and they are certainly entitled to take credit for the good work they did in assisting to bring about various amendments in the Bill. The word "plan" was added at their suggestion, and, taken with the other words, "sketch" and "study," would probably cover all that is intended. But we still do not see why the word "drawing" could not also have been inserted, as it could have done no harm, and might have been useful. The addition of the term "model" was obviously required, and has now been accomplished. The striking out of all dual ownership in Copyright by employer and architect seems to us the most important change effected in the Bill. It would obviously have been both vexatious and impracticable, and must have led to litigation. Copyright in architectural work belongs to its author or designer. The word "author" is used in the Act, and it is better than "designer," because the term "design" is already applied legally to quite other things, not necessarily of an artistic character.

The Committee say very fairly that the Act has "amended and simplified in a very satisfactory way the principal clauses relating to architecture in the draft Bill." The optional registration, as *prima-facie* proof of Copyright, has been dropped, as not being needed. The result is that the author of every original artistic work has the copyright in himself. This right arises essentially from the fact of his being the author, or creator, of the work itself to which copyright attaches. When his copyright is infringed he will have to prove its existence, and this will, in effect, be done by producing the work which he has created. The author is made the first owner of copyright, so that, in his case, the proof of that right carries with it his title to sue. Where there has been a sale or assignment of the copyright then title must be proved from, and through, the first and true owner of the work. We have here the simplest principle of property, freed from any question of obtaining copyright by user, publication, registration, or otherwise. But it will be interesting to see, after July 1, how this right principle will work out in practice and in business.

It should be noted that Copyright accrues to the author of "every original artistic work." It is likely that when questions of infringement come before the Committee there will be a good deal of argument over the construction of these words. Of course, "original" is not used in the absolute sense; but it would seem that at all events relatively there must be something original, or unusual, or uncommon in the work itself to give it copyright, although this may only be in the new combination of old ideas. Then it must be "artistic" in itself. Now, "artistic" is certainly a wide word of many meanings, and one can foresee much debating, though doubtless the term will soon settle down to a sensible interpretation. But there is a sort of double definition given to an "Architectural Work of Art," for this is to be a building "having an artistic character or design, in respect of such character or design." The clause also goes on to say that copyright is confined to these points, and shall not extend to processes or methods of construction. Ironical people, looking about

some of our cities and towns, might say that artistic character and design were not very visible in their architecture. We are much better nowadays, but the point remains that the author of an architectural work will, in future, have to do something rather original and artistic to earn his copyright.

It is worth noting that some of the better-class building societies are fairly confident that things are brightening for builders. At its meeting on Tuesday the chairman of one of the local societies congratulated its members that its addition to the reserve fund was the largest for some years, and justified the directors in extending the 4 per cent. allowance to another two years' investors' accounts—on all accounts opened prior to January, 1896. The society had made more profit by doing a steadier business. He also pointed out that while the number of new houses built last year in Birmingham was, according to the official return, 2,714, and much below the normal number, if the reduced rate was continued there would be, in the near future, an increased demand for small houses. It was worthy of note that an increase was found to be among houses at 6s. 9d. per week. Houses at 5s. a week showed an actual decrease. We have no doubt ourselves, as the vice-chairman remarked, that as soon as people have become accustomed to the changes brought about in connection with its ownership, those who have made prudent investments in land will reap the benefit, and that house property must, in the very nature of things, become, as of old, a good market for the thrifty, saving classes of the country.

Lucky lawyers! There is a battle of the bungalows on at Heacham, Norfolk. Heacham is between Sandringham and Hunstant, and many bungalows are built on the shore. The overseers of the parish raised the assessments of the bungalows, and the owners rebelled, instructed counsel, and won. The parish now has over £200 legal costs to pay. But that only marks the first round. The owners, in defending their case, argued that no water supply existed, and no sewerage system. Now it is also alleged that overcrowding takes place in the bungalows. So there is a movement to force them to be kept closed as unfit for habitation.

Mr. Lloyd George last Monday addressed at the London Opera House a crowded meeting organised by the National Liberal Federation, and dealt with the Insurance Act. The Master of Elibank intimated that the Act is to be made a party issue. We are very sorry for that, and so will the Government be at the next election. The Bill was introduced, with an appeal to all parties and sections to make it a workable measure, and then forced through over the heads of all who wanted to help. We have nothing to do here with what Mr. George denounces as "Tory misrepresentation"; we have only to deplore the fact that he is so foolish as to stigmatise the refusal of the medical men of the country to become parties to disastrous failure as "inaptitude," and that he still does not know the meaning of his own Act. He said on Monday that the insured would receive the amount representing medical benefit through their societies. That is not so. The Act rules that the Commissioners are to pay direct to each insured person the estimated cost of his medical benefit, which

is not the same thing at all. Again, this power of suspension is only conferred when and where the practitioners in any list are not such as to secure an adequate service in any area. Where are there likely to be such lists?

Whether it will hasten the general adoption of cremation or not we do not know. The evidently graves are likely to become costly luxuries like most other things. If Mr. Lloyd George remains at the Exchequer much longer! Mr. Arthur C. Lyngham tells a story in the *Times* of Tuesday of a client of his firm who desired to transfer a grave to another member of the family, and for whom he prepared the necessary deed of transfer. Prior to the Finance Act, this document would have been stamped with a deed stamp of 10s. as a voluntary deed, but under section 74 of the Finance Act, "any conveyance or transfer operating as a voluntary disposition inter vivos shall be chargeable with the like stamp duty as if it were a conveyance on sale with the substitution in each case of the value of the property conveyed or transferred for the amount or value of the consideration for the sale." Under this section this simple transaction necessitates the valuation of a grave in order to have the document properly stamped.

So the deed was prepared, and submitted for adjudication, when the authorities demanded: "Is this a voluntary disposition? If so, state value of rights transferred." Mr. Lyngham's firm replied: "It is a voluntary disposition. Cannot ascertain value; please refer to the chief valuer." They were then told that it could not be referred to the chief valuer, and that they must place a value upon it before the document could be stamped. Of course, it would be quite easy to make a guess at the value, but this will not be the value; and why should anybody be required either to adopt this course, which is not a proper one, or else employ a valuer to make a valuation? If a valuer were employed, he could, of course, ascertain by inquiry what the grave cost originally, and how many people it was intended to hold, how many have been buried in it, and, with an actuary's aid, might perhaps ascertain the present value of the grave to the estate of the owner when he passes to the land where it is to be hoped Lloyd Georgian taxation is not; but even then the owner may be buried at sea or in some distant country, so that the grave is of no value even to his estate when he dies. Probably the valuer would have to take the value of the monument into account; if so, would the value have to be taken at the price it would fetch in the open market? If, however, the grave is to be valued for the purposes of stamp duty on deeds, it must also be valued for the other purposes of the Finance Act for increment value duty, undeveloped land duty, and estate duty. It would be interesting to know whether the chief valuer has given his attention to this problem of the valuation of graves, and what course he has adopted with regard to them.

Part I, Vol. XI. of the Proceedings of the Rhodesia Scientific Association is devoted to a long and interesting paper read last year before the Society by Mr. Francis Edward Masey, F.R.I.B.A., entitled "Zimbabwe: An Architect's Note on the Ruins." Mr. Masey, who was employed by the Rhodesian Government to report on the ruins in 1909, mainly

confines his notes to the "Temple," its origin and date. There has been some controversy about these ruins, principally between Mr. R. N. Hall and Mr. D. Randall M'Ever, whose conclusions, as many readers know, differ, and hardly seem founded on evidence that would satisfy an architect. Mr. Massey, after actual excavations and careful examination, thinks his evidence may go a little way to reconcile the diametrically opposite points of view of Mr. Hall and Mr. M'Ever. Mr. Massey tries to show, firstly, that unmistakable indications exist, not of one civilisation or race, but of a permanent and continuous occupation of the country. Secondly, that the peculiar and eccentric shapes of many of the remains have been dictated by some economic reason or practical necessity, such as self-defence, carried out by the people of the country as well as natural resources allowed, rather than due to any mysterious requirements of antique religious cult introduced from abroad. Thirdly, there are indications that the practice of Baal worship, though originally introduced through contact with some race from the north, had been carried on subsequently by the natives of the country, resulting in the same degeneration from the original model as may be seen in the instance of Christianity after its introduction into Abyssinia. So, Mr. Massey thinks, we may see in these ruins the remains of an ancient African rude civilisation, but affected by foreign influence, perhaps contemporary with, and not more unaccountable in its features, than those of Mexico or Peru, and the study of which, as Mr. M'Ever points out, should be rather more, than less, interesting on account of its parentage, in view of the relations which seem to have existed between it and Mediterranean civilisation during one of the most interesting epochs of the world's history.

LONDON COUNTY COUNCIL.

The announcement was made at Tuesday's meeting of the London County Council that the King had consented to lay the foundation-stone of the new County Hall on Saturday, March 9, at 12 o'clock noon. The Education Committee reported to the Council that work is proceeding in connection with the erection of two new central schools and four new secondary schools, and the enlargement of three elementary schools. The total additional accommodation thus provided will amount to 3,353 places, at an estimated cost of £145,326. Five schools are being structurally improved by the provision of halls, etc., at a cost of £63,100, and one school is being rebuilt at a cost of £18,606. Tenders have been accepted for the following works: Painting work at two and cleaning work at fifty elementary schools, at an estimated cost of £31,713; the improvement of the means of exit by the extension of staircases, etc., at three schools, and the provision of an external iron staircase at one school, the tenders amounting to £260; heating work at seven elementary schools, a training college, and a place of detention, at a total cost of £1,802; the improvement of lavatory accommodation at an industrial school, at a cost of £137 10s.; and the installation of electric lighting at one elementary school, the amount of the accepted tender being £395. The erection of new premises for the London County Council School of Photo Engraving and Lithography is in progress in Bolt court, Fleet street, E.C., the amount of the accepted tender being £15,013. Two handicraft centres and three domestic economy centres are in course of erection, and a gymnasium and art-room are being erected at the Avery hill Training College, the total estimated cost of the work, exclusive of that at Hoxton House, being £4,650.

Our Illustrations.

NEW CATHOLIC CHURCH, SHERINGHAM, NORFOLK.

This church, consisting of nave, chancel, aisles, and transept, is built of thin red sand-faced bricks, with Weldon stone for the windows, doorways, and arches, etc. Inside the building the walls are plastered. The roofs of the aisles and transept are covered with greyish-red sand-faced tiles, while the roof of the nave, which is of rather flat pitch, and concealed behind a parapet, is covered with slate. The simple king-post construction of this roof shows in the church, and is decorated in colour. The sanctuary has a black and white marble floor, and the altar and reredos are also of marble. The reredos is coloured and gilded, and beneath the altar is a carved wooden reliquary-case, similarly ornamented. There is also a large hanging rod marking the junction of the nave and chancel. The length of the church inside is 61ft., and the width 33ft. The transept is 32ft. long and 16ft. wide. The cost of the building was about £2,700. The contractors were Messrs. Nichols Bros., of Oakham. The reredos was made and carved by Mr. G. Ratcliff, of 2, Mallow-street, Old-street, E.C., while the colouring and gilding were carried out by Mr. G. Tosi, of 58, Beau-champ-place, Brompton-road, S.W. The roof and reliquary-case were made in the Austrian Tyrol, and were decorated by Mr. Tosi. A presbytery has recently been built adjoining the end of the transept, the building being situated in this building. Mr. G. Gilbert Scott, of Gray's Inn-square, is the architect.

NEW SECONDARY SCHOOL FOR GIRLS, YORK.

This school is planned to accommodate 400 girls; but only a portion of it has been built at present, with classroom accommodation for 270. The scheme is so designed that the additional accommodation can be added at any time without interfering with the part already erected. The plans herewith illustrate the general arrangements. The building is of the "central-hall" type, with the classrooms grouped round it. The main block is two stories in height, and the projecting wings contain the laboratories, domestic science room, scholars' dining-room, etc. Entering the building at the principal entrance on the north side of the building, the principal's room is one side, and the students' library on the other. The central hall is 61ft. long by 34ft. wide, and of two stories in height, with a gallery along its south side, from which the upper classrooms are approached. There are twelve classrooms grouped round the hall, into each of which the sun shines during some of the school hours. At each end of the building, and near the entrances from the playground, are the cloakrooms, changing-rooms, lavatories, and the staircases to the upper floor, all properly warmed and fitted. One of the classrooms is fitted as a botany-room, with sink, dark-room, etc. A studio, 44ft. by 20ft., for drawing classes, is arranged on the first floor, with special north light. The building is constructed as far as possible in fire-resisting principles. The main walls are of brick faced with red sand-faced bricks. The floors are of concrete, finished with wood or cement, as their use requires. The roofs are tiled, and the window-sashes and cornices, etc., are of wood painted white. The playground has space for four tennis-grounds—two of asphalt and two of grass. A garden is also arranged on the south of the building for the practice of botany and horticulture. The tower and remaining part of the site is utilised as a playing field for hockey, etc. The building is warmed throughout by "low-pressure" hot water with ventilating radiators. Open fires are provided in the rooms devoted to special studies. The general contractors were Messrs. W. Airey and Son, of Servia-road, Leeds, and the building was designed and erected under the superintendence of Mr. Walter H. Brierley, F.S.A., architect, York.

BORDEAUX CATHEDRAL PORTAL. NATIONAL MEDAL DRAWINGS.

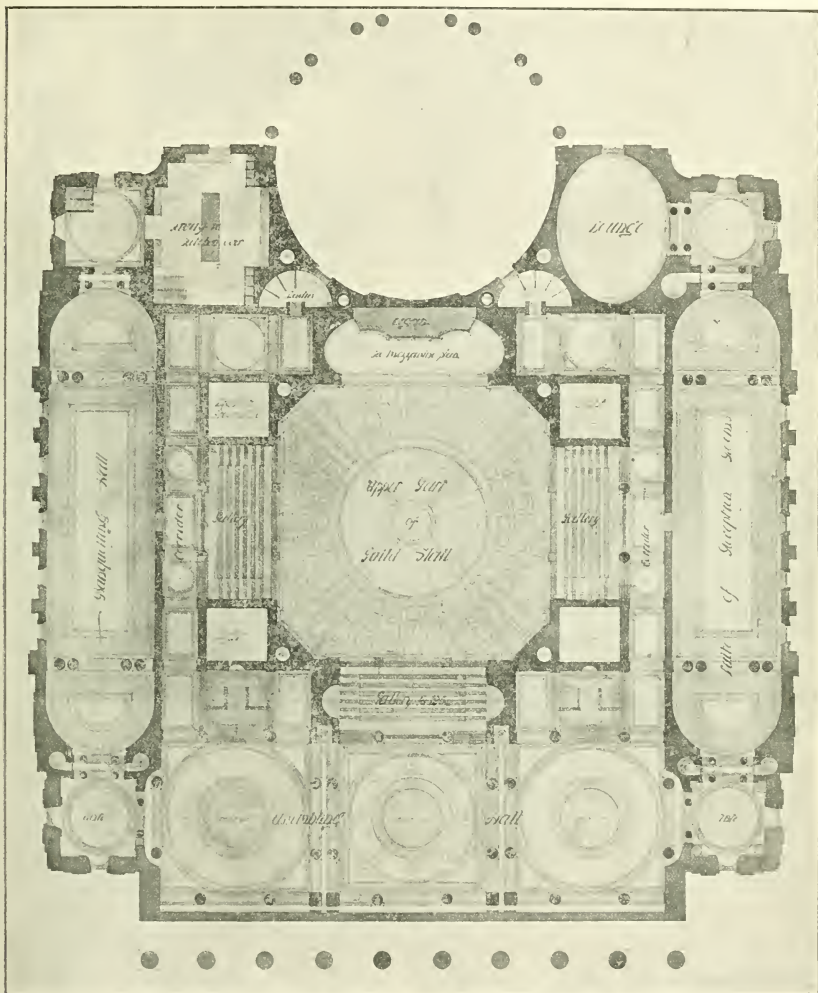
This portal to the cathedral is situated at the end of the north transept, a typical position for doors of this period. The jambs of the entrance are enriched by four groups of three engaged columns, and between each group is a sculptured figure, thus giving three figures on each jamb. These figures, which are 6ft. 1½ in. high, are dignified by being placed under canopies, which have vaulted roofs. The arch-mouldings carry up the lines of the columns of the jambs, and between each set are sculptured figures 2ft. high, each statue having its own canopy, similar, but smaller, to those over the figures above. Natural foliage is carved on the mouldings of the arches, which are crowned with a hood-moulding similarly decorated. The tympanum has sculptured reliefs representing the Last Supper and the Ascension into Heaven. The figure on the centre pier of doorway has more work bestowed upon it than the others, and this concentration of finish is typical of doorways of this kind. It has a richer canopy than the other figures. The cathedral is well known, of course, as a remarkable example of its period. The western part of the church forms a vast nave without aisles, 60ft. wide and 200ft. in length. It was originally roofed by three great domes; but on being rebuilt in the 13th century it was covered by an intersecting vault, with a fine array of flying buttresses outside to support its thrust. The cathedral possesses a characteristic chevet of five chapels, and two spires of great beauty at the ends of the transept, a very uncommon feature in France. Modern additions of chapels between the flying buttresses of the nave are shown by dotted lines on plan. The author of these drawings is Mr. W. A. Ross, who sent us the above notes. He was a pupil of Mr. C. A. Mitchell, A.R.I.B.A., and assisted him during rebuilding of the Polytechnic in Regent-street, W., now nearing completion.

ROYAL INSTITUTE OF BRITISH ARCHITECTS: SOANE MEDALLION COMPETITION PRIZE DESIGNS.

The detail which we now give of Mr. Friskin's prize design was intended, like the two accompanying plans, to have been given last week when we published each of the prize designs by reproducing both of their elevations and their ground plans. The first-floor plans herewith printed complete our illustrations from this competition, and the descriptions which appeared last week, as sent us by Messrs. W. Friskin and P. de Jong, leave nothing more to be added here.

OBITUARY.

We regret to announce the death, on Saturday last, at 10, Philbeach-gardens, Earl's Court, of Mr. Thomas Miller Rickman, F.S.A., F.S.I., the leading member of the quantity surveyors' profession, and for very many years in practice in Montague-street, Russell-square. Mr. Rickman, who was eighty-four years of age, was the son of Thomas Rickman, the author of the "Essay to Discriminate," which, when published in 1819, set all men theorising as to the development of Gothic architecture and paved the way for the Gothic Revival. The late Mr. Rickman applied himself to the prosaic field of quantity surveying, and obtained, by assiduity and reliability, an extensive practice, his clients including Messrs. Alfred Waterhouse and Son and many other distinguished architects. For many years he had been the senior member of the Royal Institute of British Architects, having been an Associate of that body since 1854. He was also one of the oldest members of the Architectural Association, having been elected some sixty years ago, and serving as President in 1854-5. In 1899 he occupied the presidential chair of the Surveyors' Institution, and had been for many years an Associate of the Institution of Civil Engineers. The interment took place at St. Pancras Cemetery, Finchley, on Wednesday



ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
 CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN by MR. PIET DE JONG ("Antæ").

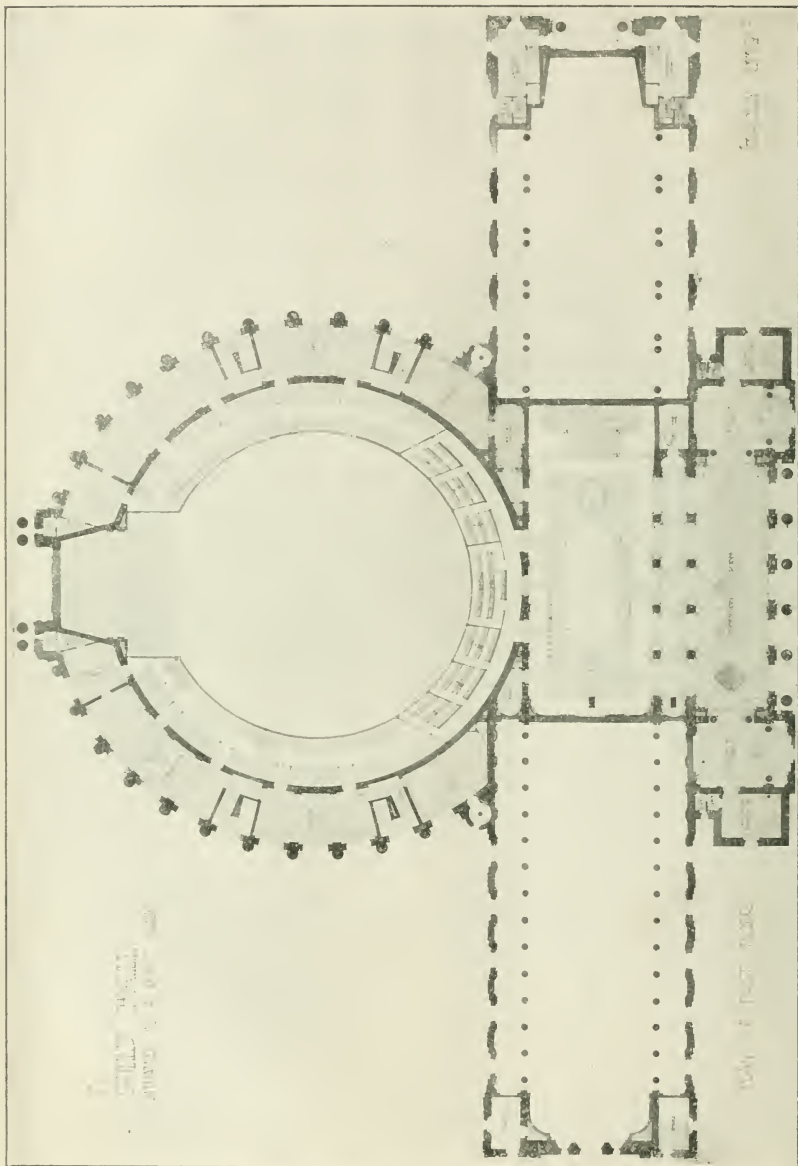
afternoon, and a commemoration service was held at the Catholic Apostolic Church, Gordon-square, yesterday (Thursday) morning.

Mr. Alexander Graham, F.S.A., for many years the genial hon. secretary of the Royal Institute of British Architects, an appointment which he resigned in May, 1909, owing to increasing deafness, died at Carlton Chambers, Regent-street, W., on Friday last, at an advanced age. He carried out some important buildings, including premises faced

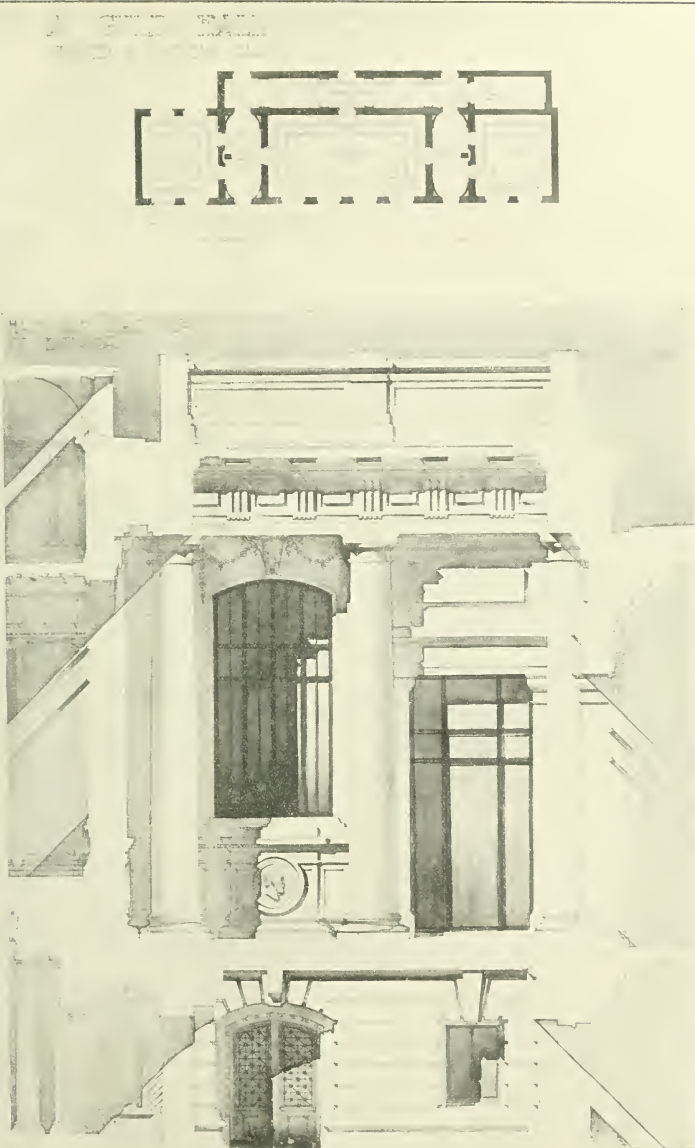
with terracotta for Messrs. Howell and Jones in Regent-street, and the Sandlebridge Colony for Epileptics. It will be recollected that the latter group of buildings were afterwards attacked by dry-rot, and that in May, 1908, the building owners, the David Lewis Trustees, brought an action for alleged neglect of ventilation against Mr. Graham, who, on the advice of counsel, agreed to pay an undisclosed sum in settlement. Mr. Graham, who was an accomplished water-colour draughtsman, was of recent years fre-

quently engaged as an assessor in competitions, the most recent instance being that for the infirmary buildings at Rochdale.

At a meeting of subscribers to the memorial fund to the late Bishop of Hull, Dr. Blunt, held at Scarborough on Wednesday, it was decided that the fund, amounting to £607, should form the nucleus of the cost of building the chancel of the church of St. Columba, Scarborough, to be known as the Blunt Memorial Chancel. The new church will seat 800 people and cost £10,000.

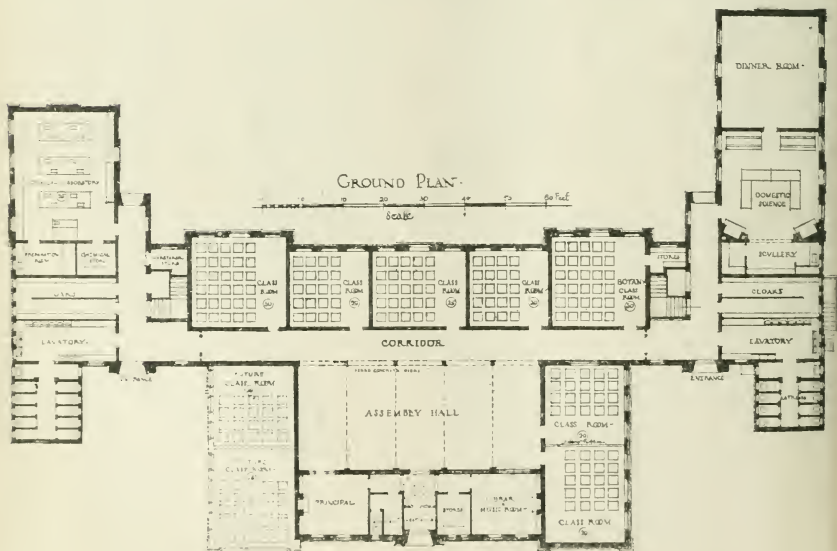
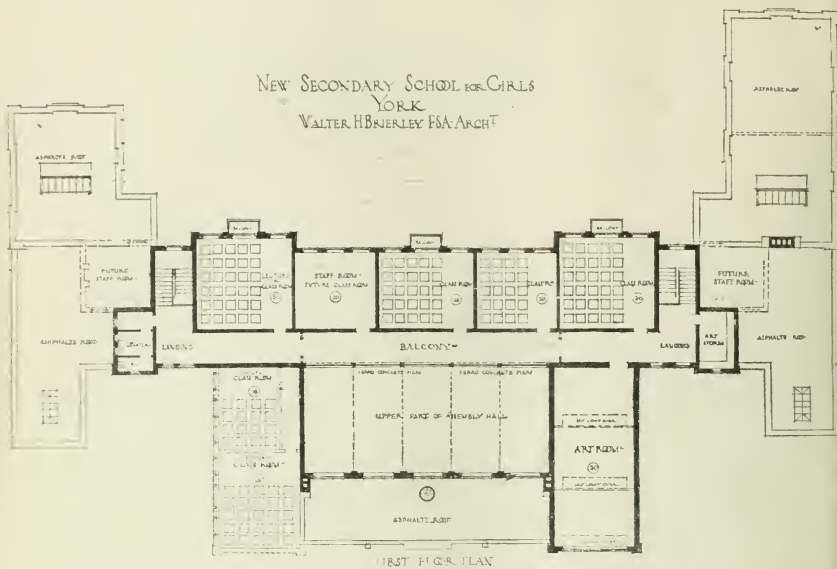


ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
 CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN BY MR. WILLIAM FRANKS (Circle City.)



ROYAL INSTITUTE OF BRITISH ARCHITECTS. SOANE MEDALLION COMPETITION, 1912.
CERTIFICATE OF HON. MENTION AND £50. PRIZE DESIGN by MR. WILLIAM FRISKIN ("Circle City").

NEW SECONDARY SCHOOL FOR GIRLS
YORK
WALTER H. BIERLEY F.S.A. ARCHT



Building Intelligence.

AUCKLAND, N.Z.—The new town hall for Auckland, New Zealand, was opened on December 14 by Lord Islington, the Governor of the Dominion. The building, which is Free Classic in style, occupies a triangular site, with frontages to Grey-street and Queen-street. The material used for the foundations is Oamaru limestone with a base in Melbourne limestone. For the main Queen and Grey-streets fronts a columnar method of design has been adopted, terminating at the apex formed by the junction of the two streets in a segmental colonnade, surmounted by a tower 18ft. square and 130ft. high, in which is to be fixed a clock with four dials of 8ft. 6in. diameter. In front of this colonnade is a terrace inclosed by a stone balustrade, with provision for a statue at the extreme angle. The foundations required special treatment on account of the depth at which rock was found. Concrete piers have been carried down at intervals to the rock, and the spaces between spanned by concrete beams carrying the walls, the beams being reinforced with Kahn steel bars. The building is divided into two portions, the first being a four-story building containing the municipal offices, and the other containing the Great Hall, Lesser Hall, and Supper Room. On the ground floor is the council chamber, a room semicircular in plan, 47ft. by 42ft., and panelled in kauri, with plaster walls and ceilings and lead glazed windows. On the first floor is the great hall, which has an average length of 168ft. by a width of 75ft., and an actual floor area for dancing of 122ft. by 75ft. At one end is an organ, the largest in New Zealand, built by Messrs. Norman and Beard, of London and Norwich, and in front thereof is placed a chorus gallery and orchestral platform, accommodating 350 performers. The ground floor seats 1,660 persons, exclusive of the chorus gallery and platform, while a further 740 can be accommodated in the balcony, situated on two sides and at the end of the great hall. The architects are Messrs. J. J. and E. J. Clark, of Melbourne, whose design was selected in competition, and the contractors are Messrs. Ferguson and Malcolm. The cost has been £126,000.

SOUTH KENSINGTON.—The building of an addition to the Imperial College of Science and Technology—namely, the Botanical Institute in Prince Consort-road, has been already begun. Sir Aston Webb, C.B., M.V.O., R.A., has designed a four-story building, about 120ft. long by about 40ft. deep, which will be ready for occupation by the opening of the next session. The two lower floors will be devoted to the general botanical work of the college, now carried on at the Royal College of Science in Exhibition-road. The two upper floors have been designed for the new department of Plant Physiology and Pathology. A feature of the top floor will be the greenhouse-laboratory, 25ft. by 20ft., which will have a cement floor and glass roof, so as to combine the advantages of a greenhouse and a laboratory. On the same floor will be a physiological laboratory and a professor's room, two research laboratories, and five other research rooms. On the floor below will be a bio-chemical laboratory, pathological laboratory, a bacteriological laboratory, a constant temperature room, and two more research rooms. The building will cost about £14,000.

The price of Mr. Briggs's book on "Pompeian Decorations," reviewed by us last week, is 25s. net, not 15s., as it was given by an error of the printer.

At the meeting of the Clydebank Town Council on Monday night, a report was submitted by the town-planning committee showing the district within which a scheme might take effect. The district includes Old Kilpatrick on the west to Blawarthill Hospital on the east, together with Duntocher, Hardgate, Fairlie, Garscadden, and Drumchapel on the north. A plan of the district is to be prepared, showing among other matters how a portion of it might be linked up by a tramway system.

COMPETITIONS.

BUCHAREST.—In the competition limited to Roumanian architects for a palace for the Senate to be built at Bucharest, the first prize has been awarded to the design under motto "Argus," by M. Ernest Donadon, and the second to that submitted under the title, "Nihil sine Deo," by M. Demetra Mironopol. The work will be entrusted conjointly to the two premiated architects, both of whom are former students of l'Ecole des Beaux-Arts de Paris.

LURGAN.—The Lurgan Urban Council have appointed Mr. James Hunter, B.E., Lisburn, their architect for the erection of houses under their improvement scheme, his plans being adjudged by the assessor first in order of merit of those submitted. The two next in merit were those by Mr. McLean, architect, Scottish Temperance Buildings, Belfast, and Mr. Fennell, F.R.I.B.A., Scottish Provident Buildings, Belfast. Mr. Hunter will carry out all the necessary architectural work, the sum of £2,000, however, provided a clerk of works is employed, if the eight houses are to be built, the twenty-five on the north side of Wellington-street being estimated to cost £125 each, and to let at 3s. 3d. per week, and the thirty-three on the south side of the same thoroughfare, to cost £100 each, and letting at 2s. 9d.

RHOS CHAIR EISTEDDFOD, WHIT-MONDAY, 1912.—A first prize of £10, and a second prize of £5, is offered in competition for the best design of one pair of workmen's Raymonds. The adjudicator will be Mr. Raymond Cunliffe, F.R.I.B.A., whose decision must be accepted as final and conclusive. The designs must be delivered by post not later than Wednesday, May 1, 1912, addressed to Mr. G. Merion Griffiths, Art Secretary, Rhos Naubon.

THE SOCIETY OF ENGINEERS.—The council of the Society of Engineers (Incorporated) may award in 1912 two premiums of books or instruments to the value of £8 8s. and £4 4s., as first and second prizes respectively, for approved essays on the subject of "How to Improve the Status of Engineers and Engineering with special reference to Consulting Engineers." The council reserve the right to withhold either or both of the premiums if the essays are not of the required standard of merit. The competition is open to all, but application for detailed particulars should be made to the secretary before entering. The last date for receiving essays is Friday, May 31, 1912.

THE USHER HALL: THE DECORATIONS AND ORGAN.—At a meeting of the Usher Hall Committee of Edinburgh Town Council, held on Saturday last, there was considered the outside statuary of the building, and the organ for the hall. The outside statuary was decided upon. From models submitted, that for the central doorway showed a design of the city arms, with emblematic figures representing music as supporters. The two subsidiary doors at the front of the building are to be decorated with allegorical musical groups, and the doors at Grindlay-street with groups representing music and composition. The designs selected were: For Grindlay-street, H. Gamley, A.R.S.A.; for the central doorway, W. Birnie Rhind, R.S.A.; and the other front doors, Mr. M. Lure, of Kensington. With regard to the organ, the organist of St. Mary's Cathedral was present to advise. It was agreed to remit to him to prepare plans and specifications, limiting the competition to six selected firms. Nothing definite was fixed as to the price.

WEST HARTLEPOOL.—The limited competition for the proposed new church of St. Luke, West Hartlepool, in which Mr. W. D. Caroe acted as assessor, has resulted in favour of the design submitted by Messrs. Lofting and Cooper, of 44, Bedford-row, W.C.

WINNIPEG.—Mr. Leonard Stokes, P.R.I.B.A., has been appointed by the Government of Manitoba to act as assessor in the competition for the new Government Buildings in Winnipeg. It is expected that he will leave England about the middle of

next month, and will be absent for several weeks. The last day for sending in plans, under the extension recently made known, is March 31, and it is stated by Canadian papers that although the competition was an open one, owing to the short time afforded for the preparation of designs, it will be practically restricted to practitioners in the Dominion. The appropriation for the buildings is £200,000, exclusive of heating, lighting, plumbing, and fittings. Provision is required for 183 rooms with a total floor space of over 220,000 sq. ft. Out of the plans submitted, five will be selected by Mr. Stokes. The authors of these plans will receive £2,000 each. Mr. Stokes will pay a second visit to Winnipeg in the autumn, and will select from the five completed designs one for execution. The architect whose plans are finally adopted will be paid 4 per cent. only upon the estimated cost of the work as represented in the accepted tender.

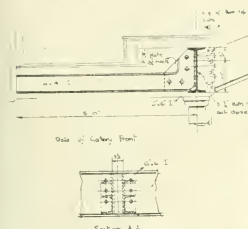
PROFESSIONAL AND TRADE SOCIETIES.

CLERKS OF WORKS' ASSOCIATION DINNER.—The twenty-ninth annual dinner of the Incorporated Clerks of Works' Association was held at the King's Hall, Holborn Restaurant, on Saturday evening. The chair was occupied by Mr. Gerald C. Horsley, F.R.I.B.A., President of the Architectural Association, and there was a large muster of members and guests. The vocal solos having been given from the chair, Mr. R. H. Henley, vice-president, proposed, "The Architects and Surveyors," which was acknowledged by Mr. Edward Warren, F.S.A., F.R.I.B.A., who traced the historic evolution of the clerk of works during the past two centuries, and urged the paramount importance of mutual confidence and respect between architects and clerks of works. The toast of "The Builders," brought forward by Mr. John Williams, past-president, was acknowledged by Mr. Henry T. Holloway, jun. The toast of the evening, "Prosperity to the Incorporated Clerks of Works Association," was proposed by the chairman. All present who were members of the association were, Mr. Horsley observed, fully aware of the good it was doing, had done, and would hereafter do. He considered it the bounden duty of every clerk of works who was eligible for membership to enrol himself in its ranks, and if he was not eligible, he should take immediate measures to make himself so. He would thereby greatly benefit not only himself but also all the other members of his trade. All present, he felt sure, regarded a clerk of works as a very exceptional person, but there was one side of him which, between themselves, was very like other people, and that was that if a clerk of works got into the way of living alone and working alone, and of not meeting his colleagues and fellow-craftsmen, he was apt to get into a groove, and, sooner or later, he would find this groove an uncomfortably tight place, while he himself was certain to be narrowed in mind and in outlook. Further than that, he would find that his works' duty to others. Besides looking after the material interests of its members, the association, by the guarantee it offered of their capability and integrity, became an important factor in the building trade, and consequently in architecture. In his personal experience he had known architects who had said: "I can't be bothered with a clerk of works—give me a foreman, and he will do all I want." Well, all architects desired a good foreman on each of their jobs, and such was the excellence of the British workman, they generally got him. But his experience went to show that a clerk of works who really carried out his duties was about the most useful man on a contract. The fact was, they were all the better for being looked after by a clerk of works, and he was the best supervision the clerk of works often saved valuable time—and time was money. In responding, Mr. C. W. Denny, the president of the association, explained its objects, emphatically stating that it was not a trades union, nor could it employ any portion of its funds to support a union. Its sole aim was to bind members together, to guarantee the

able twisting member in the girder, its total value depending on the length, and the resistance on the weight transmitted to the gallery beams and the holding-down bolts. Frederick Dyer, P.A.S.I., 75, Lindey-street, York.

[13085.]—THEATRE BALCONY.—The method shown in sketch accompanying query of connecting cantilever channels to 15in. joist would not give sufficient rigidity for a structure of this class. The accompanying sketch shows a good method of connection. The channels are forged, and bolted direct to the web of the 15in. joist, the

at abutments. If both ends were fixed on rollers, the truss would slide off its abutment. If one end would be vertical, the abutment at right end giving the reactions to sliding and vertical loading combined. As both ends are fixed, each abutment takes share of this sliding, in addition to the vertical loads. The diagrams show a simple and correct method. Draw the frame diagonally to scale, plotting the calculated loads, pressures, and the thrusts.



forged head 1000lb. strengthened by a 3in. plate riveted to web of channel. The calculations for numbers of bolts to 15in. joist are as follows:—Load on pair of channels = 4,400lb. load on each channel = 2,200lb. = say, 1 ton. The channel is a lever with fulcrum at bottom flange of 15in. joist. Then, assuming the whole of this load as acting at the centre of the half ton, the moment of the load

$$= 1 \text{ ton} \times 30 \text{ in.} = 30 \text{ in.-tons} \dots (1)$$

Assuming that the pull in the short arm of the lever is taken by the two top bolts with a centre of gravity at 10in. from fulcrum, then moment of pull

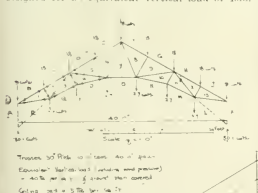
$$= P \times 10 \text{ in.} \dots (2)$$

where $P = \text{pull}$. Equating (1) to (2)

$$10P = 30 \dots P = 3 \text{ tons.}$$

Two 3in.-diameter bolts are, therefore, ample; but three would be used, as shown, for the sake of stiffness. It would be quite good practice to use bolts for connection to the 15in. joist in order to facilitate erection.—H. J. Nowlan, 7, Gordon-terrace, Torpoint, R.S.O., Cornwall.

[13086.]—STRESS DIAGRAM.—The simplest stress diagram for a roof of this type and span is here given. Roof trusses up to 40ft. span are usually designed for an equivalent vertical load of 40lb. per



square foot of ground plan covered, such load including the wind-pressure. This is given in some textbooks, such as "Theory and Design of Structures," by Ewart S. Andrews, but is ignored by most authors, as, of course, they are more concerned with principles which are applicable to all spans of trusses. The stress diagram is self-explanatory. Member 3-4 has been introduced in order to reduce the eccentricity in the main tie due to curvature. It is pointed out that it is considered good design to arrange the long members in a truss as ties, and the short members as struts; and this truss would be more effective if member 4-5 were placed in position as shown dotted.—H. J. Nowlan, 7, Gordon-terrace, Torpoint, R.S.O., Cornwall.

[13086.]—STRESS DIAGRAM.—It is not correct to assume a vertical load in lieu of wind-pressure, though it is sometimes done to simplify diagrams and to get approximate stresses. There is always a force tending to slide the truss horizontally on its abutments, which must be resisted by inclined reactions

Vertical load from truss:—Snow 8lb. per ft. super. of roof surface; purlin 11lb. ditto, truss 3lb. ditto, slates 10lb. ditto, rafters 3lb. ditto, fin. raking 3lb. ditto; total 28lb. per foot super. Load on joints B-C, D-E, E-F, F-G, G-H, H-J = 5ft. 9in. $\times 28 \text{ lb.} = 1,510 \text{ lb.} = 14 \text{ cwt. nearly.}$ 7cwt. on joints A-B and J-K, these joints having only half roof area of the other joints. Wind pressure normal to roof: Assuming a maximum wind pressure of 50lb. per foot horizontal, this gives a normal at 90° to horizontal of 33lb. per foot super. Load on joints B-C, D-E and E-F = 5ft. 9in. $\times 33 \text{ lb.} = 1,903 \text{ lb.} = 17 \text{ cwt. nearly.}$ 8cwt. on joints A-B and E-F, these joints only having half roof area of pressure (ceiling). Vertical load from ceiling: Ceiling joists = 3lb. per foot super. 14th and plaster = 13lb. ditto; total = 15lb. per foot super. Load on joints P-O and Q-N = 10ft. $\times 15 \text{ lb.} = 1,500 \text{ lb.} = 13 \text{ cwt. nearly.}$ 12cwt. on joints O-N and N-M = 5ft. 6in. $\times 15 \text{ lb.} = 1,275 \text{ lb.} = 11 \text{ cwt. nearly.}$

Plot down wind-pressures, roof loads, and ceiling loads as shown, with their respective reactions. The reactions of roof and ceiling loads at each abutment is half of the total load, because the loads are symmetrically placed on truss. The reaction for wind is found as shown. Draw on frame diagram lines through abutment parallel to wind-pressure. The curved members in tie are treated in diagrams as being straight from joint to joint. They have a bending moment equal to the stress, as measured from diagram, multiplied by the height of their arc of curvature, as shown in figure. They also act as beams, carrying a distributed load from ceiling of 10lb. per foot-run.—A. Wainman, 405, Church-road, Smithills, Bolton.

LEGAL INTELLIGENCE.

THE CHAIRMAN OF THE L.C.C. FINED FOR BREACH OF BY-LAWS.—Mr. Edward White, Chairman of the London County Council, was summoned before Mr. Plowden, at the Marylebone Police-court on Friday, at the instance of the Marylebone Borough Council, for within the last three months constructing at his house soil-pipe of

iron instead of drawn lead, with proper wiped plumbers' joints, as required by the London County Council drainage by-laws, and also for carrying out the work without having previously deposited "plans, sections, and particulars" of it with the borough council. Mr. Freke Palmer, solicitor, appearing for the Marylebone Borough Council. Mr. White conducted his own case from the solicitors' box. Mr. Freke Palmer remarked that at the defendant's house, without notice having been given, a manhole and two branch drains had been constructed and a soil-pipe had been erected which was of iron instead of lead. The by-laws permitted an outside soil-pipe to be of iron or lead, but required that an inside soil-pipe should be of lead, and lead only. Mr. White, when written to on the subject, submitted plans; but they were returned, as they did not accurately represent the work, and were not in accordance with the London County Council by-laws. He then wrote: "I have not the slightest intention of altering the iron soil-pipe, so shall have to be content to let them remain without your approval. In view of that letter, the borough council had no alternative but to take these proceedings.—Dr. Porter, medical officer of health, gave evidence.—Mr. White said it was rather singular that he should have been summoned, seeing that he had been previously appointed by statute to preside over the committee that dealt with the appeals under the by-laws. The house in question was a four-story building which he was preparing for his own occupation. He contended that an iron soil-pipe was far better from a sanitary point of view than lead, and, since a very small portion of the pipe in question was inside the house, he claimed that it could fairly be described as a soil-pipe outside the house, and could therefore be of iron. The present proceedings were entirely irregular, as the council had failed to make an order against him to do the work. Owing to the illness of his son, the plans were not submitted at the proper time; but the borough council had forfeited their right to proceed against him, &c., that by their subsequent conduct.—Mr. Plowden found that the council were right in taking proceedings against Mr. White in respect of the plans, and fined him a nominal penalty of 10s., with 2s. costs. But the real point in the case, he said, was the soil-pipe. The pipe was half inside the house

son had cut, and since we had no right to law which provided for a pipe so situated, since the council had not consented that the whole pipe was inside, the case could not proceed. He dismissed the summons, and was ordered to pay the costs of the proceedings.

EUSTON-ROAD BUILDING LINE. HIGH COURT APPLICATION.—On Friday, Feb. 9, before a Divisional Court of the King's Bench Division composed of Justices Hamilton and Lush, Mr. Dally applied, ex-parte, on behalf of the London County Council, for a rule nisi to compel the Tribunal of Appeal under the London Building Act, to show cause why they should not state a case for the opinion of the Court. Counsel said that under the Act the determination of the general line of buildings in any particular street, or part of the street, was in the first instance carried out by the surveyor and the superintending architect; but against that certificate the Act gave an appeal—what was an appeal both on facts and law—to which was known as the Tribunal of Appeal. From that Tribunal there was an appeal by way of a case stated in questions of Appeal to the High Court. The present application had regard to a difficulty that had arisen in respect to Euston-road. There was the certificate of an architect as to the general line of the buildings in a certain part of Euston-road, and there was an appeal stated in questions of Appeal to the Council. In which many people appeared. There were originally five appellants, and there were interested parties who were also called. The Tribunal decided the case in a certain way, and there was an application for a case or cases to be stated. The Tribunal took the view that there were five different proceedings before them, in each of which they ought to give a separate determination and state separate cases. The question for their Lordships now was, whether there ought to be one or three cases. There were now three appellants only, said counsel. Mr. Justice Hamilton: Do you say the Tribunal proposes to state three cases?—Counsel: Yes. We ask that there should be one case stated to which all the parties who were called before the Tribunal of Appeal should be named. Mr. Justice Hamilton: If there were three cases raising the same point, they would all be in the paper together, and judgment would not be given until they had been argued, and the three respondents would be heard together. Counsel said that the London County Council would be the respondents in every case here, and with three cases it would amount to a very considerable quantity of litigation. He agreed with what Mr. Justice Hamilton had said with regard to each party having the right to a separate case; but, as his Lordship was probably aware, the House of Lords had decided that the determination of the position of the building-line was not the determination as between the superintending architect and any particular party who had a house in the line of building, so that it might be left open to any party having a different house to get another determination. Mr. Justice Hamilton: Is there any divergence in the arguments of these different appellants?—Counsel replied that he believed that, with one slight exception, the contentions were practically the same. Mr. Dally then read out the legal sections dealing with the determination of the general line of buildings in streets and the provisions concerning the stating of a case for the opinion of the High Court on questions of law, and he said he submitted that a local authority or anybody who had an interest might go before the Tribunal of Appeal, and any party interested could also go before them and be heard. The Tribunal of Appeal had to give an opinion for the opinion of the High Court in any question which was involved in any appeal submitted to them. Mr. Justice Hamilton said he saw the Tribunal of Appeal had given an elaborate statement not only on its refusal to comply with counsel's wishes, but it was stated that it would be difficult to consolidate the points of law and facts in one combined case, and it might create hardship if it were so simple to state in three cases, and they thought that would be more conducive to justice being done.—Counsel in further reply to the Court, gave notice to the Tribunal of Appeal, and the London County Council were the respondents, and the appellants were Lush. Then the Tribunal of Appeal might not by their decision satisfy the appellants or the respondents?—Counsel said in this case the Tribunal of Appeal "broke out" with a judgment which was not reached by the parties concerned. The superintending architect had defined the general line of buildings along a certain part of the Euston-road, and the whole discussion was with reference to that line in

which the particular case was stated. The Tribunal of Appeal, rightly or wrongly, divided into three, and defined building lines in three different parts of the street. Something was decided by the Tribunal which neither of the parties had asked for. Counsel added later that if the rule were granted, it would have to be served on the appellants, and notice given to the parties interested. There were appellants as to the middle part, and as to the west end of the Metropolitan Railway Company would be made respondents, and the London County Council would be made appellants. Ultimately, after further discussion, the rule was granted.

Our Office Table.

Representatives from the London County Council, the Middlesex County Council, Kensington, Fulham, Hammersmith, Chiswick, Brentford, Tooting, and Isleworth were present at an important conference on Wednesday, at the offices of the Road Board, to consider the proposed new approach-road to London on its western side. The proposed new road would be 80 ft. wide, and would extend from the West Cromwell road to Hounslow, via Hammersmith and Brentford. The estimated cost would be approximately £1,000,000 within London and £750,000 in Middlesex, an Act of Parliament would probably be necessary. Regarding the cost, Sir George Gibb, the chairman, stated that the Road Board is prepared to contribute in the aggregate £875,000. It was decided that the local authorities interested should be asked to appoint delegates to attend a further conference to discuss the details of the scheme.

The broad gravel path in the Green Park between the ornamental gateway facing Buckingham Palace to a spot almost immediately opposite the Naval and Military Club in Piccadilly is being remodelled. Instead of a wide, open space will be narrow paths, between which there will be turf and trees. The work has been undertaken in order to provide a better approach to the King Edward Memorial statue which is to be placed in the avenue, at the culminating point of the slope, not far from the railings in Piccadilly. Mr. Bertram MacKenna, A.R.A., the sculptor, is, in conjunction with Mr. Edward L. Lutyens, F.R.I.B.A., making a model of the proposed statue of the King. This will be ready for the inspection of the Mansion House Committee towards the end of this month.

The President of the Board of Agriculture and Fisheries has appointed a Departmental Committee: (1) to inquire and report as to the nature and character of the buildings which should be provided for use in connection with small agricultural holdings in England and Wales, regarding land: (a) to the health, Acts and any orders or regulations made thereunder. (2) To submit a series of plans and specifications likely to be of assistance to local authorities and landowners for the purpose. Mr. Christopher Turnor is the chairman of the committee, and among the other members are Mr. A. Ainsworth Hunt, M.S.A., of Bury St. Edmunds, and Mr. H. H. Law, M.Inst.C.E., deputy chief engineering inspector of the Local Government Board, and Mr. Raymond Cunwin, F.R.I.B.A. Mr. C. W. Sabin, of the Board of Agriculture and Fisheries, will act as secretary.

A useful half-crown treatise by Mr. C. E. Howden (London: Longmans, Green, and Co.) on "The Precise and Therefore Economic Calculation of Pipe, Drain, and Sewer Dimensions," will be found of service by engineers and others concerned in water-supply and drainage. Some good designs are illustrated, from which, with the hydraulic

tables, based on a careful comparison of all available coefficients, anyone can, adopting any desired coefficient, at once ascertain the safe minimum dimensions, and, therefore, the lowest reliable cost of the pipes, drains, and sewers required.

A preliminary statement of the general results of the thirteenth United States census relative to establishments engaged in the manufacture of brick and tile has been issued by the Department of Commerce and Labour, Washington. It covers building, fancy and ornamental brick, vitrified brick, drain tile and any other brickyard product. The general summary shows increases in all the items at the census of 1909, as compared with that of 1904, except in number of establishments, which decreased from 4,634 to 4,125, or 9 per cent. The capital invested as reported in 1909 showed an increase of 46 per cent over 1904. The average capital per establishment was approximately 41,000dols. in 1909 and 26,000dols. in 1904. The value of products had increased by 30 per cent., but the cost of materials used showed an increase of 45 per cent. The salaries and wages amounted to 42,578,000dols. in 1909, and 32,176,000dols. in 1904, an increase of 32 per cent. The number of salaried officials and clerks was 4,551 in 1909 and 3,690 in 1904, an increase of 23 per cent. Their salaries rose by 54 per cent. The average number of wage earners employed during the year was 76,528 in 1909, and 68,021 in 1904, an increase of 16 per cent.; their wages had improved in the five years by 30 per cent.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Edinburgh Architectural Association. Annual Dinner at the Edinburgh and Foresters' Rooms, 139, Princes-street. 7.30 p.m.

Glasgow Architectural Craftsmen's Society. "The Management of Building Contracts," by James Muir. 8 p.m. Institution of Civil Engineers. Students' Meeting. Vernon Harcourt Lecture No. 1 on "Works for the Prevention of Coast-Erosion," by W. F. Donaldson, M.A., F.R.S.E.

SATURDAY (TO-MORROW).—Architectural Association. Visit to the British Museum Extension (G. J. Burnett, F.R.I.B.A., Architect). 2 p.m.

Junior Institution of Engineers. Annual Dinner, Hotel Cecil, 6.30 p.m.

MONDAY.—Royal Institute of British Architects. Colleague Architecture, by Edward Whitley. 8 p.m.

Liverpool Architectural Society. "A Holiday in Piedmont," by T. E. Eccles, F.R.I.B.A. 6 p.m.

TUESDAY.—Architectural Association of Ireland. Annual Dinner, Metropole Hotel, Dublin. 7 p.m.

WEDNESDAY.—Edinburgh Architectural Association. "Plasterwork," by George P. Bankart, of London.

THURSDAY.—London Master Builders' Association. Annual Dinner.

FRIDAY (FEB. 23).—Birmingham Architectural Association. "A Talk about the Birmingham Council's Extension," by Ashley and Newman. Leicester Society of Architects. Reminiscences and Reminiscences, by P. L. Goddard, M.A., F.R.S.E. Institution of Civil Engineers. "Works for the Prevention of Coast Erosion," by W. F. Donaldson, M.A., F.R.S.E. Vernon Harcourt Lecture No. 2. 8 p.m.

SATURDAY (FEB. 24).—Institution of Municipal Engineers. Superintending Engineer of Tonbridge, by A. Winter Gray, J. Southampton-road, W.C. 6 p.m.

The Harrison-Hughes engineering laboratories at the University of Liverpool are practically completed. The new laboratories have been built at a cost of about £400,000, borne by Messrs. Fenwick and Heath Harrison and Mr. J. W. Harrison.

It is announced in "Architectural Association Notes" that the fund for the widow and family of the late Mr. David G. Driver, secretary of the Association, continues to grow in a manner worthy of the A.A., and now stands at something over £500.

The Thorne Rural District Council have elected Mr. Harold Pless to the dual position of surveyor and inspector of nuisances, at a salary of £150. Mr. Joseph Stanley, whom he succeeds as surveyor, had held the post for thirty years, and is an octogenarian.

GLAZED BRICKS.*

| HARD GLAZES. (PER 1,000.) | | Best. | | Second. | |
|--------------------------------|--------------|----------|----------|---------|----------|
| White, Ivory, and | Salt Glazed. | Buff and | Other. | Second | Colours. |
| Best. | Seconds. | Cream. | Colours. | | |
| Strechers— | 13 17 6 | 23 7 6 | 213 7 6 | 2 6 7 6 | 210 17 6 |
| Headers— | 10 7 6 | 8 17 6 | 11 17 6 | 16 17 6 | 10 7 6 |
| Quoins— | 13 17 6 | 12 17 6 | 14 17 6 | 19 17 6 | 14 7 6 |
| Double Strechers— | 18 13 17 6 | 19 7 6 | 10 7 6 | 22 17 6 | 16 7 6 |
| Double Headers— | 13 7 6 | 11 17 6 | 16 7 6 | 19 17 6 | 13 7 6 |
| One end and two ends, square— | 2 6 7 6 | 16 17 6 | 2 6 7 6 | 24 17 6 | 17 7 6 |
| Two sides and one end, square— | 16 7 6 | 16 17 6 | 21 7 6 | 25 7 6 | 16 7 6 |
| Spots and Spigots— | 16 17 6 | 14 7 6 | 20 7 6 | 23 7 6 | 15 17 6 |

| | | | | | |
|---|----------|----------|----------|----------|----------|
| Plinth and Hollow Bricks, Strechers and Headers— | 6d. each | 4d. each | 6d. each | 6d. each | 5d. each |
| Round Internal Angles— | 6d. each | 4d. each | 6d. each | 6d. each | 5d. each |
| Double Bullnose, Round Ends, Bullnose Stops, and Bullnose Mitres— | 6d. each | 4d. each | 6d. each | 6d. each | 5d. each |

| | | | | | |
|---------------------------------------|----------|----------|----------|----------|----------|
| Strechers and Headers— | 6d. each | 4d. each | 6d. each | 6d. each | 5d. each |
| Internal and External Angles— | 12 each | 12 each | 12 each | 12 each | 12 each |
| Wall Bullnose, Strechers and Headers— | 6d. each | 4d. each | 6d. each | 6d. each | 5d. each |

| | |
|--|-----------------------|
| Majorics or Soft Glazed Strechers and Headers | 22 17 6 |
| Compass Bricks, circular and arch bricks | 20 17 6 |
| Of single radius 6d. per 1,000 over above | Not ex- |
| For their respective kinds and colours | ing 6d. |
| Camber arch brick, any kind or colour | 4 1/2 in. x 2 1/2 in. |
| Strechers cut for Closets and Nicked Double Headers | 21 17 6 |
| For 1,000 extra. | |
| These prices are carriage paid in full truck loads to London stations. | |

| | |
|----------------------------------|-------------------------------|
| Thames and Pitt Sand— | 6 d. |
| Best Portland Cement— | 28 0 per ton, " |
| Best Ground Blue Lime— | 10 0 " |
| Exclusive of carriage for sacks. | |
| Grey Stone Lime— | 31s. 6d. per yard, delivered. |
| Stourbridge Fireclay Sacks— | 27s. 6d. per ton at ry. str. |

TILES.

| | d. | Delivered |
|---|---------|----------------------|
| Plain red roofing tiles— | 42 0 | per 1000 at ry. str. |
| Hip and Valley tiles— | 3 7 | per doz. |
| Ornamental tiles— | 42 6 | per 1000 |
| Hip and Valley tiles— | 4 0 | per doz. |
| Red or brown, or brindle | | |
| do. (Edwards)— | 67 6 | per 1000 |
| Ornamental do.— | 60 0 | " |
| Hip tiles— | 3 0 | per doz. |
| Valley tiles— | 3 0 | " |
| Selected "Perfecta" roofing tiles— | | |
| Plain tiles (Peake's)— | 48 6 | per 1000 |
| Ornamental do.— | 3 10 | per doz. |
| Hip tiles— | 3 4 1/2 | " |
| Valley tiles— | 3 4 1/2 | " |
| Red or brown, or brindle tiles— | | |
| Ornamental tiles— | 48 0 | per 1000 |
| Hip tiles— | 3 8 | per doz. |
| Valley tiles— | 3 8 | " |
| Staffordshire (Hanley) Reds or brindle tiles— | | |
| Hand-made sand-faced— | 42 6 | per 1000 |
| Hip tiles— | 3 6 | per doz. |
| Valley tiles— | 3 6 | " |
| "Hatched" brand plain sand-faced— | | |
| Fpressed— | 47 0 | per 1000 |
| Ornamental do.— | 60 0 | " |
| Hip tiles— | 4 0 | per doz. |
| Valley tiles— | 3 6 | " |

OILS.

| | | |
|---------------------------------|------------|---------------|
| Rapeseed, English pale, per ton | 228 15 0 | to 239 5 0 |
| Do., brown— | 26 15 0 | to 27 5 0 |
| Linseed, refined, per gal. | 30 0 0 | to 31 0 0 |
| Olive, Spanish— | 30 10 0 | to 32 0 0 |
| Sea, pale— | 31 0 0 | to 31 10 0 |
| Cocoon, Cochia— | 42 0 0 | to 43 0 0 |
| Do., Caylon— | 42 10 0 | to 43 0 0 |
| Do., Mauritius— | 42 10 0 | to 43 0 0 |
| Paint, Lagoon— | 32 6 0 | to 33 6 0 |
| Do., St. Karal— | 35 0 0 | to 36 0 0 |
| Ulene— | 17 6 0 | to 18 0 0 |
| Spirit— | 30 0 0 | to 31 0 0 |
| Lantern U.S. 8, per gal. | 60 0 0 | to 61 0 0 |
| Petroleum, refined— | 0 0 6 1/2 | to 0 0 6 1/2 |
| Tar, Stockholm— | 1 8 0 0 | to 1 10 0 0 |
| Do., Archangel— | 0 0 7 1/2 | to 0 0 8 1/2 |
| Linseed Oil— | 0 3 3 1/2 | to 0 3 3 1/2 |
| Baiter Oil— | 0 3 10 1/2 | to 0 3 10 1/2 |
| Burpene— | 0 3 1 1/2 | to 0 3 1 1/2 |
| Putty (Genuine Linseed Oil)— | 0 11 0 0 | to 0 11 0 0 |
| "Stony" Brand— | 0 10 0 0 | to 0 10 0 0 |

| | | | | | |
|--------------------------------|----------------|-------|-------|-------|--|
| GLASS (IN CRATES). | | | | | |
| English Sheet Glass— | 15oz. | 21oz. | 26oz. | 32oz. | |
| Fourths— | 13d. | 2d. | 31d. | 3d. | |
| Thirds— | 24d. | 31d. | 41d. | 6d. | |
| Printed Sheet— | 24d. | 31d. | 41d. | 6d. | |
| Harley's English Boiled Plate— | 3d. | 3 1/2 | 4 1/2 | 6d. | |
| Figured Rolled, and Reponneze— | 2d. | 2 1/2 | 3d. | 5d. | |
| | White, Tinted, | 3d. | 5d. | | |

VARNISHES, &c.

| | | |
|---|--------|--|
| Per gallon. | | |
| Pine Pale Oak Varnish— | 40 8 0 | |
| Pine Copal Oak— | 8 0 0 | |
| Superfine Pale Elastic Oil— | 12 6 0 | |
| Best Japan Oil— | 18 0 0 | |
| Superfine Hard-drying Oil, for outside of churches— | 14 0 0 | |
| Fine Elastic Varnish— | 12 6 0 | |
| Superfine Pale Elastic Carriage— | 18 0 0 | |
| Fine Pale Maple— | 18 0 0 | |
| Finest Pale Durable Copal— | 18 0 0 | |
| Finest Pale French Oil— | 18 0 0 | |
| Exquisite Flatting Varnish— | 18 0 0 | |
| White Copal Enamel— | 1 4 6 | |
| Extra Pale Paper— | 12 6 0 | |
| Best Japan Oil— | 18 0 0 | |
| Black Black Japan— | 18 0 0 | |
| Oak and Mahogany Stain— | 0 9 0 | |
| Brass and Iron— | 0 9 0 | |
| Berlin Black— | 18 0 0 | |
| Knocking— | 10 0 0 | |
| French and Brush Polish— | 10 0 0 | |

TRADE NOTES.

Mr. L. Serrallier, manager, and Mr. R. W. Vaudrey, chief engineer, of the Inclined Bar and Concrete Engineering Company, Ltd. have been appointed directors of that company.

Under the direction of Messrs. R. Meade and Boaz, architects and surveyors, Belfast, Mr. H. H. Pond-road, London, N., a few minutes' walk of the old premises at Cliford-mews. The nearest railway station is Midland Park.

The Japan Enamel Company have found it necessary to secure larger and more permanent premises at Kingsbury, near Hulle Pond-road, London, N., a few minutes' walk of the old premises at Cliford-mews. The nearest railway station is Midland Park.

The Salisbury and District Isolation Hospital is being supplied with Sherland's double-fronted patent Manchester stoves, patent Manchester grates, and special extract and inlet ventilators by Messrs. E. H. Sherland and Brother, Ltd., of Falsworth, Manchester.

Mr. Herbert Phillips Fletcher, F.R.I.B.A., F.S.I., A.M.I.C.E., of Messrs. Bunster Fletcher and Sons, 29, New Bridge-street, Ludgate-circus, E.C., was on Tuesday last elected by the Blackheath Bench of Magistrates as their advisory architect.

The old wooden bridge over the Ouse between King's Lynn and Downham, which has long been useless for vehicles, is to be replaced by a steel structure estimated to cost £6,000, the work having been undertaken by the Norfolk County Council on condition that £2,000 is contributed by the locality.

Messrs. Norton Griffiths and Company have been awarded the contract for the harbour works at St. John's, New Brunswick, at the price of 7,500,000l. (£1,875,000). This includes dredging, and the construction of wharves and a dry dock, with a subsidy for the dock of 3 per cent. on 3,000,000l.

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TENDERS.

* * * Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, if the accepted tender; it adds to the value of the information.

ACCESSION.—For the revision of twenty-four pipe-and-revolving distributors, each 6ft. in diameter, for the Accretion and Church of All Saints, Worcester. (Mother & Platt, Ltd., Manchester accepted.)

ANSTAY.—For new macadam roads, with pipe sewers, manholes, lampholes, &c., on the Friarland Land Society's Estate, Anstey, near Leicester. Messrs. W. T. Toppett and Son, 15, Holcot-street, Leicester, surveyors.—
 Bolton, J. M., 15, Holcot-street, Leicester, 4,200 9 0
 Chamberlain, C., Leicester, 7,392 0 0
 Mason, G., and Sons, Anstey, 7,034 18 8
 Bates, J., 15, Holcot-street, Leicester, 6,900 0 0
 Toppett, J., and Son, Leicester, 6,953 0 0
 Hutchinson, J., and Son, Leicester, 6,950 0 0
 Moss, W., and Sons, Ltd., Loughborough, 6,350 0 0
 Slough, P., Rotherham, 6,210 0 0
 Simpson and Rotherham, Leicester, 4,200 9 0
 Palmer, A., Glenfield (accepted), 6,000 0 0
 Ball, J. T., Barrow-on-Sea*, 5,175 0 0

BATTERSEA, S.W.—For the building of the boys', girls', and infants' school, Manlius-street, for the London Education Committee.—
 Smith, W. & Son, Hatfield-road, 420,527 0 0
 Down, W., Walsworth, 19,874 0 0
 Longley, J., & Co., Crawley, Sussex, 19,511 0 0
 Patman and Fotheringham, Ltd., 19,511 0 0
 Islington, 19,247 0 0
 Patrick, J., and M., Wandsworth, 19,164 0 0
 Davies, D. W., Caxton, 19,950 6 11
 Wallis, G. E., and Sons, Ltd., 18,840 0 0
 Haymarket, 18,840 0 0
 Johnson, W., and Co., Ltd., 18,800 0 0
 Wandsworth-common, 18,800 0 0
 Rowley, B., Boundary Works, 16,298 0 0
 Bowyer, G., and Co., Ltd., Upper, 17,381 0 0
 Norwood, 17,381 0 0
 Leng, T. D., Evelyn-street, 17,319 0 0
 Deftoff (accepted), 17,319 0 0
 Kearney, C. F., & Great Marlborough-street (withdrawn), 16,700 0 0

BURTON-ON-TRANT.—For the extension of the plant at the electricity works, for the town council. Accepted tenders:—
 For switch-boards, motors, &c.:—
 British Westinghouse, 26,481 0 0
 For water-tube boiler:—
 Babcock and Wilcox, 1,362 0 0
 For economizers:—
 Green, E., and Sons, 1,248 0 0
 For chimney stack:—
 The Alphonse Custodis Co., 415 0 0

CASTLEVIEW.—For erection of a picture palace in Alfreton. Mr. J. P. Paget, Carlton Chambers, Castelfield, architect. Quantities by the architect.—
 Walker, and Son, 1,091 7 6
 Powell Bros., 1,072 0 0
 Thompson, T., and Sons, 998 0 0
 Wilson, G. H. (accepted), 995 0 0

CASTLEVIEW.—For alterations to Nos. 101, 173, and 168, Cerkewell-road, on the Bourne Estate, for the London & Colchester Railway Co.—
 Haskins, S. and Bros., Ltd., 1110 10 0
 Old-street, E.C., 1110 10 0
 Wray, P. J., & Co., Manor-road, 98 10 0

Housing manager's estimate, £28.
 * Recommended for acceptance.

FARNHAM.—For erection of new school at Farnham, Norfolk. Mr. Herbert G. Green, architect.—
 Neal Bros., Ebbam, 110,218 0 0
 Dickerson, F. & S., King's Lynn, 9,598 0 0
 Farnham, G., Oulton, 9,370 0 0
 Hands, H., and Sons, Wisbech, 9,338 0 0
 Blyth, T. H., Farnham, 9,256 5 6
 Shanks, and Chatter, 9,145 0 0
 Hawes, G. E., and Sons, Norwich, 9,071 0 0
 Gill, T., and Son, Norwich, 8,847 0 0
 Youngs, J., and Son, Norwich, 8,847 0 0
 Hennard, W. J., Norwich, 8,781 10 7
 Needs, J., Farnham, 8,746 0 0

KINGSTON.—For the construction of waterworks, for the urban district council. Mr. F. C. Crimes, F.A.S.I., Kingston, engineer. Quantities by the engineer.—
 Williams, W., Ebbam, 4,390 0 0
 Mead and Pearce, Westminster, 914 9 7
 Colclough, McLaren, and Jeffery, 499 18 8
 Burke, F., and Sons, Stoke-on-Trent, 809 0 0
 Bullock, Stoke-on-Trent, 870 0 0
 Middleton and Hepper, Bedford, 861 17 0
 Trenham, G. P., Hantsworth, 840 0 0
 Sanders and Tarrant, Stoke-on-Trent, 839 19 2
 Taylor, J., and Sons, Bedford*, 8 13 6
 * Accepted. (Engineer's estimate, £400.)

LARGE.—For additions to the workhouse fever hospital (for the ladies). Mr. E. C. Porters, Local Architect.—
 Duthie, A., 2,410 0 0
 (Irwin, H.), 800 0 0
 McNell, A. (accepted), 650 0 0

LIVERPOOL.—For the supply and erection of a 15-ton travelling crane at the new graving dock, for the dock commissioners:—
 Armstrong, Whitworth, and Co., £4,100 0 0

LEITCHWORTH.—For erection of proposed school, Phoenix, for the Hertfordshire County Council. Mr. (Irwin, H.), M.C.E., county surveyor.—
 Jewell, B., Stroud (green-rd.), N., 2,246 4 0
 Beckley and Turpie, Leitchworth, 5,598 4 4
 Sainsbury and Son, Harpenden, 5,598 4 4
 Hacksley Bros., Wellyingborough*, 5,345 1 3
 Bailey and Co., Ashwell, 5,462 0 0
 Palmer and Ray, Leitchworth, 5,180 5 5
 Brown and Son, Wellyingborough, 5,305 0 0
 Henson and Son, Wellyingborough, 5,211 17 4
 Willmott and Son, Hitcham, 5,034 0 0
 Jackson and Son, Royston, 5,034 0 0
 Bonser, G. W., Leitchworth, 5,043 0 0
 Redburn and Son, Stotfold, 5,043 0 0
 (Irwin, H.), Melton, 4,030 14 8

* Accepted. amended tender for revised scheme.

(Continued on page N.T.)

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Eggingham House,

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Strand, W.C.

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| New York Public Library. Plans, Elevations, and Sections. Messrs. Carrère and Hastings, Architects. | |
| BUILDING NEWS Designing Club: Three Designs for a Detached Water-Tower. | |
| The Art of the Plasterer. By Geo. P. Bankhart. | |
| Warehouse, No. 2, St. Andrew's Hill. Messrs. Daw, Wills, and Church, Architects. | |

BUILDERS' OFFICIALS IN THE MIDDLE AGES.

The following list probably includes all officials commonly employed by Medieval builders:—Clerks of works, masters of works, setters out of work, overseers, surveyors, deputy-surveyors, paymasters, purveyors, and builders' clerks. To some extent, as we shall see, the work of any one of the above-named officials was at times carried out by any other of them. In more than one instance we shall see that one man executed the functions of no less than three officials.

THE CLERK OF WORKS.

In modern times this official is known as the Clerk of Works, but in Medieval days he was spoken of as the Clerk of the Works (in the Record Office MS. 464-20 "Clarke of the Workes"). It is probable that many Medieval accounts recording the expenditure in wages and the cost of materials purchased were set down by the builders' clerk acting directly under the authority of the clerk of works. We may suppose the actual accounts as they remain to-day to have been made up from entries set down at the time. Indeed, we sometimes see in these accounts a statement that the expenditure recorded may be seen in greater detail in other books. Of Medieval building accounts remaining, set down under the authority of the Clerk of Works, perhaps one of the most interesting is that in the Record Office labelled Exch. Acc. 504-2. In this MS. we see that the "clerk and surveyour of the sayde workes" was paid at the rate of 4s. a day to cover his "ordinary rydynges costes from place to place to know his grace's pleasure not only for surveying of the foresaide castells and mannours for buyldynges and repayryng of the same, but also for rydyng dyvers tymes for making of payments for the foresaide buyldynges and reperacions done." For his "ordinary boote (boat) hiren" he had 20d. a day, and "for his ordinary fee belongyng to the foresaide office as Clerke and Surveyor of the sayde workes at his day, over and besydes wyl, the dave more to hym allowyd for a Clerke to make his bookes." In MS. 464-20 we see that Laurence Norton was Clarke of the Workes in 1546. He was paid 8d. a day "for making of purveycon of nayles, tyle, yllpeyns, lime," etc.; for procuring workmen, for overseeing the workmen, and for taking up the books. Norton was paid his last wage on October 3, 1546, the new clerk commencing his duties as "clarke of the workes" on Monday, the 5th, and receiving his first wage on Saturday, the 10th. In Ex. Acc. 504-2, a clerk of works is paid but 1d. a day, the page in which such payment is entered recording also the payment to

labourers of 5d. a day. The following order to a Clerk of Works in the year 1517 is to be seen in the Record Office MS. 474-9. Such orders, so common at one time, are now rarely met with.

"We wol and commaunde you, that ye with diligence upon the sight hereof, ye deliuer or cause to be deliuered unto our trusty seruaut syr John Nevell, Knight, towards the buyldyng of a house at Myle ende, oon hundred thousande of breke and twenty quarters of lyme, beinge of our owne store and provision and to be deliuered at the said Myle ende at our owne propre costes and charges. And this our letres shal be your sufficient warrant and discharge in that behalf. Yeuen vnder our signet at our manour of Greenwich, the xliiii daye of Julye, The ixth yer of our Reigne,

"To our trusty and wel beloued seruaut,
"Henry Smyth, Clerk of our workes."

MASTERS OF WORKS AND OVERSEERS.

Masters of Works are rarely mentioned, but in the time of Henry VIII. a carpenter of the name of John Kerver eventually rose to be a "Master of the Kings Workes" in the district of North Wales. In one of the many records of building operations carried out under the authority of John Kerver, we find the entry of a payment to himself "for overseying and setting a work the seide workemen" (MS. 488-30). Here we find the same man both Master of the Works and Overseer. In an account of certain building operations mention is made of wages paid to "overseers" (MS. 488-15). In MS. 504-2 a Laurence Bradshaw receives 16d. a day, he is called "The Setter forth of Workes and Overseer of Workemen." In another place he is described as "The Setter oute of Workes." Subsequently Bradshaw's wages were reduced to 12d. a day, excepting on those days when he was out "rydinge," on which occasions he was paid 20d. per day. In MS. 464-20 Thomas Jauncy is paid 6d. a day for "overseing" that the workmen "do they're dute," and for making up the books. In this case we see the same man doing the work of an overseer, and also that of a builder's clerk. It is also to be noted that the side heading to this entry is "clarke of the Workes." He executed the functions of three officials.

THE PURVEYOR.

The purveyor was the official whose business it was to travel about to secure the various materials needed by the builder. In MS. 504-2 the duties of the Purveyor are set down very clearly:—"Purveyour. Provydyng as well carriage for tymber, borde, lathe, quarters, and other necessaries hade out of Suffolke as also for carriage here nere home of tymber and planks bought." In MS. 479-II we read of expenses entailed by "the purveyours rydyng about sondry provysions for the said workes." The pur-

voyer was not a highly-paid official; he was probably paid about 8d. a day in addition to his expenses for horse hire. Sometimes he is placed in the same group as the clerks: the following entry, however, draws a distinction between the purveyor and the clerks: "ii purveyours, ii clerkes, and sondry labourers daily retyaynid." In MS. 504-2 John Downe is "purveyour" at 6d. a day.

THE SURVEYOR, DEPUTY-SURVEYOR, AND PAYMASTER.

In MS. 488-27 we read of the "deputy surveyor," an official very rarely mentioned in builders' accounts. In MS. 489-17 we see that Robert Buryhill was surveyor, paymaster, and purveyor; he rode "from place to place for provysions." Official paymasters are rarely mentioned, the payment of the workmen probably generally resting with the clerk of works. In MS. 645-29, Jeffery Gates is "paymaster to the workemen." Accounts are set down under his authority in MS. 544-12. Laurence Bradshaw was a paymaster, an overseer, and one who "set" the men to work. The sum of 5s. 4d. is entered in MS. 504-2 as having been paid him "for Rydyng from Westminster" (inster) to Dunstable to paye worke men there by the space of iiii dayes." Robert Pilling rode with him "for the savegarde of the same monye," receiving 4s. for so doing. In MS. 474-3 John Bayle is purveyor and overseer, too, at 5d. a day. In MS. 465-20 Hector Hasheley is paymaster and surveyor at 12d. a day. In MS. 489-16 the surveyor sees to the workmen and acts as purveyor, receiving a stipend of £10 a year, for which sum he was expected to provide the horse, which was practically part of the equipment of a purveyor. An instance of a surveyor called on to furnish a report and estimate for the repair of a building is to be seen in MS. 458-9.

THE BUILDER'S CLERK.

The ordinary builder's clerk was paid 6d. to 8d. a day. (MS. 477-12.) In MS. 504-2 we read:—"The Clerke. The Clerke keeper of the checke booke and overseer of the workmen." Here a clerk acts as overseer. The check book was possibly a volume in which the materials were entered as they were delivered on the site.

ESTIMATING FOR REINFORCED CONCRETE WORK.—III.

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STRENGTH OF MATERIALS FOR AGGREGATES.

The strength of concrete depends not only on the quality of the cement, and the proportions in which the concrete materials are mixed, but also on the compressive

strength of the material used for the aggregate. The actual crushing strength of bricks, shales, granites, etc., varies considerably according to their quality or description. The average crushing strength of various materials used for making aggregates for concrete are as follows:—

| AVERAGE CRUSHING STRENGTH OF BRICKS, STONES, ETC. | | |
|---|---------------|-----------------|
| | Per sq. inch. | Per cubic foot. |
| Bricks, common | 10 | 1,400 |
| Limestone, Bath | 100 | 1,500 |
| Do. Redder | 250 | 2,000 |
| Do. Ham-hill | 200 | 1,600 |
| Do. Portland | 250 | 2,000 |
| Shales, Mansel | 250 | 2,000 |
| Do. York, hard | 500 | 2,500 |
| Granite, Cornish | 500 | 8,000 |
| Do. Aberdeen | 500 | 10,000 |
| Do. Glenary | 800 | 12,000 |

STRENGTH OF CONCRETE.

In all important reinforced concrete works it is desirable to ascertain the average strength of the concrete proposed to be used. For this purpose, 4in., 6in., or 12in. cubes of concrete are made in the specified proportions of materials, and tested by crushing to destruction after being allowed to set for 28 days. It is usual to take the average crushing strength of 4 cubes. In testing, each cube is bedded between two thin pine bars when placed in the testing machine. The average compressive strength of well-made concretes composed of Portland cement (British standard specification), sand, and aggregates broken to pass 3in. gauge, but not 3-16in. gauge, are indicated in the following table:—

| AVERAGE CRUSHING STRENGTH OF CONCRETES. | | | | | |
|---|---------------------|----------------|---------------------|----------------|--|
| | Tons per sq. ft. | | Lbs. per sq. ft. | | |
| | After 28 | After days. | After 28 | After days. | |
| Brick aggregate | | | | | |
| Concrete 1 to 6 (1:3:6) | 25 | 38 | 400 | 600 | |
| Concrete 1 to 9 (1:2:4) | 35 | 50 | 550 | 800 | |
| Gravel or ballast aggregate | | | | | |
| Concrete 1 to 6 (1:3:6) | 64 | 96 | 1,000 | 1,500 | |
| " 1 to 9 (1:2:4) | 90 | 135 | 1,350 | 2,025 | |
| " 1 to 12 (1:3:6) | 115 | 180 | 1,800 | 2,700 | |
| " 1 to 15 (1:3:6) | 128 | 193 | 2,000 | 2,900 | |
| " 1 to 18 (1:3:6) | 154 | 231 | 2,400 | 3,500 | |
| Hard stone aggregate | | | | | |
| Concrete 1 to 6 (1:3:6) | 77 | 110 | 1,200 | 1,750 | |
| " 1 to 9 (1:2:4) | 115 | 173 | 1,800 | 2,600 | |
| " 1 to 12 (1:3:6) | 135 | 202 | 2,100 | 3,000 | |
| " 1 to 15 (1:3:6) | 147 | 220 | 2,250 | 3,250 | |
| " 1 to 18 (1:3:6) | 174 | 261 | 2,700 | 3,900 | |
| Granite aggregate | | | | | |
| Concrete 1 to 6 (1:3:6) | 90 | 128 | 1,400 | 2,000 | |
| " 1 to 9 (1:2:4) | 141 | 210 | 2,200 | 2,800 | |
| " 1 to 12 (1:3:6) | 174 | 261 | 2,700 | 3,500 | |
| " 1 to 15 (1:3:6) | 190 | 285 | 2,850 | 3,800 | |
| " 1 to 18 (1:3:6) | 220 | 330 | 3,300 | 4,500 | |

THE ART OF THE PLASTERER.*

By GEO. P. BANKHART.

Mr. Bankhart said that he should confine his remarks to an analysis of principles and qualities essential in good plaster decoration. The chief point he wanted to drive home was that in whatsoever age the "Art of the Plasterer" was practised, the greatest result was attained by the proper use and development of the particular kind of plaster employed. The immense variety that took place in the modelling and handling of the decorative work was due almost entirely to the difference in the nature of the plaster that was used. He would classify these plasters under four distinct headings. First, the "stucco duro" of the Italians (of carbonate of lime), i.e., the "Limestone" of the hills, which was very carefully selected, thoroughly well burnt, and slaked for many years, thoroughly thumped, chopped, and knocked about, and so toughened that it became very flexible and very malleable—so malleable and delicate, in fact, that die-sinkers used it in preference to wax. Another division was the "parge-work," or the ordinary lime, sand, and hair plaster used for parging flues, differing from the ordinary lime plaster in that it contained road scrapings, cowdung, and ox-hair. There was a third division, "plaster of Paris," or sulphate of lime, which was introduced into this country in the reign of Henry VII., although in general it was not much used until Elizabeth's time. There were two the modern process of casting in fibrous plaster from jelly moulds.

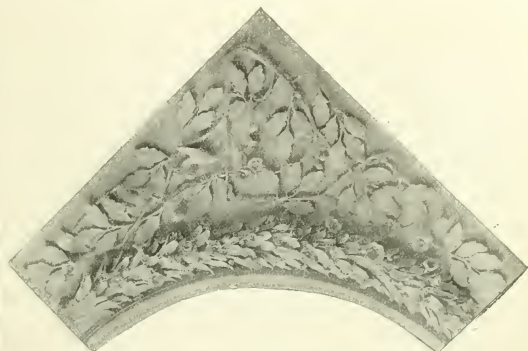
THE USE OF "STUCCO DURO"

was known so far back as 3500 years B.C. In Italy it had been shrouded in the early part of the 16th century, and on some of the tombs in Rome executed in the first half of the century could be distinctly seen the incised marks of the metal tool. This work was modelled in "situ," and was not intended to be seen by daylight consequently; perhaps imperfections were excusable, but the work was very fine and wonderful for all that, and also coloured.

Later, a band of artists trained by Raphael executed much work in Italy and France. The photographs seem to indicate that some parts of the work were cast and stuck up. One photograph distinctly shows foundation or inspiration of the English school of flat relief work, and he might add that this pure, flat relief decoration was again obtaining another lease of life in quite a healthy way. Troubles followed in Italy, and this band of artists had to escape from Rome, and was scattered. Some went to Florence, some to Venice, and others to Mantua. A school of "stuccatori" modellers was founded in each place. The art spread all over Italy and from there to France, where Primaticcio decorated Fontainebleau for Francois I. This, however, was by no means the first stucco-work executed in France.

THE FIRST "STUCCO-DURO" WORK IN ENGLAND

was carried out at "Nonsuch Palace," on the hill between Epsom and Chess, Surrey, from whence the art, fostered by the Italians, spread sooner or later to Longleat. An English plasterer named Chas. Williams, who had modelled at "Nonsuch" and travelled in Italy, carried out the Longleat work, and that on the walls of the Giant's Chamber, etc., in the first Hardwick Hall. This work was of very simple character. In the latter Hall, the frieze in the throne (ft. 6in. deep) was done by men trained by Chas. Williams, and coloured in tempera. The leaves were simply dabbed on in large groups, and shaped with a small metal tool or trowel, and slightly undercut at the same time. They were done very quickly and simply; sometimes the birds and animals were painted on the groundwork instead of being modelled. It was found that the material was rather difficult and inconvenient to procure in those days in this country, because of the marble-dust and other ingredients that were necessary, and the art



Plaster Enrichment, made by Mr. George P. Bankhart.

did not live long in the hands of the English plasterers, after the Italian fashion; but the Englishmen stuck to their parge-plaster, and developed an art of their own. The first development in the English plaster ceilings took place in the form of very simple panellings formed by beaded mouldings, with little bits of sprigs of modelling stuck at the mitres and angles, and with rosettes, etc., in the panels. Then they added simple rounded mouldings, and this gradually grew as shown by the slides, until they covered the ceiling all over with easily repeating arrangement of panellings. This sort of thing continued to

and weather-proof. Old engravings of London pageants and street processions show the work very clearly. The work was of a simple type, put on with a trowel in situ in panellings and flowerings in between and under windows, across beams, and in the gables and oriel coves. He was sorry to say many examples shown had been much filled up with whitewash. One very interesting feature about this parge-work was that in Essex, Norfolk, and Suffolk (particularly Norfolk and Suffolk), one could pass through various districts, and every few miles mark quite a distinct change and type of work, showing



Ceiling, "Kingsley's Room," Royal Hotel, Bideford.

develop by degrees, and although the modelling was exceedingly simple, the work of this period was perhaps the purest and most English. The leaves nearly all took a slight concave form, with now and again convex lumps of flowers, fruit, bosses, and heraldic bearings and devices.

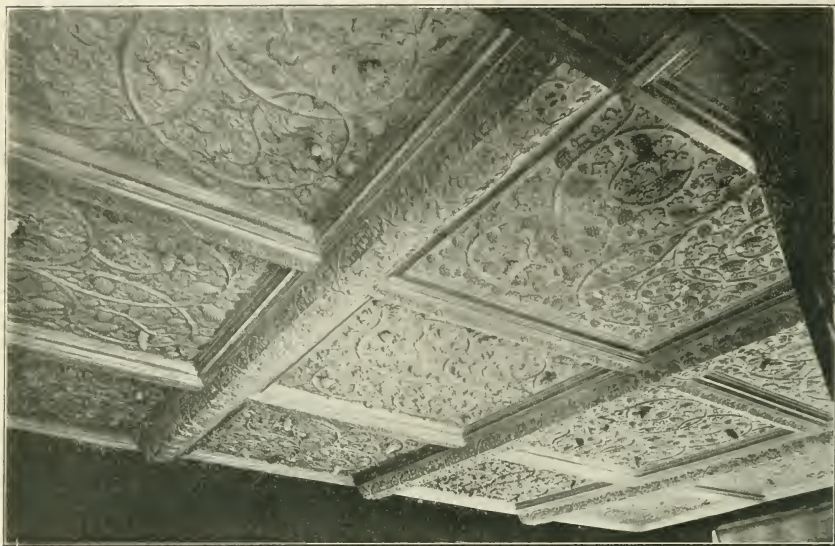
EXTERIOR PARGE-WORK.

was done practically all over the country, and in London particularly, up to the time of the Great Fire of 1666. The timber construction of the buildings was covered mostly all over with this parge-plaster ornamentation. The plaster was as tough as leather,

that it was done by the native and local plasterer or "dauber," or perhaps mason, and that they worked in their own little radius, and had their own set of patterns, which they varied as regards the same material used inside buildings. The examples shown were of overmantels and friezes in cottages in Barnstable and elsewhere, showing that the art was by no means confined to the larger buildings of the wealthy, but that it was general.

Referring to the Elizabethan period, there was an example in Burton Agnes, Yorks., to which he called special attention. The work referred to was from a semicircular vault

* Abstract of a lecture delivered to the Edinburgh Architectural Association, Feb. 21.



CEILING, SPEKE HALL, LANCASHIRE.

once existing in Burton Agnes Hall, Linc. since perished save but the fragment shown. The work was of modelled scrolls of roses, done in situ and coloured. This was one of the most beautiful bits of modelling we had in this country. There was only a small portion of it left. Many slides illustrated in great detail the drawing-room ceiling at Speke Hall, Lancashire, where there were many panels between the beams, all different in design. Each panel was different in detail and type of flower, growing from a set rhythm stem-work.

Several very interesting examples of ceilings, in which the stem-work was modelled direct into the ceiling, partly pressed with a die or stamp, and partly cast and stuck up so far as the flowers and lumps were concerned, were illustrated, including work from Kettle Castle, Fifeshire, with a full explanation of how each example was done, attention being especially drawn to the advantage taken by the builder or architect as he was then of the opportunity given by the rooms formed in the roof space, and the quaint constructional developments thus afforded which were utilised. Slides were shown of the flat ceiling of Queen Victoria's Bedroom at Holyrood Palace, Edinburgh, by permission of His late Majesty, King Edward VII., who had enabled photographs to be taken and shown. The ceiling of this room was formed centrally into a large square panel by a moulding bound round by a belt of leafage and fruit modelled and cast in individual members, and stuck up leaf by leaf and fruit by fruit in a continuous growth of decorative rhythm. Bounding the large central square panel at the cardinal points were four circles of leafage similarly modelled, dividing four V-shaped panels filled with straggling stem-work, modelled in situ, and vine or oak leaf leafage, cast separately and stuck up loosely in one rich filling.

THE REVIVAL OF "STUCCO DURO."

The lecturer then went on to describe and illustrate the revival of "stucco duro" in situ modelled ceilings of Inigo Jones',

Webb's, Wren's period by the Italian plasterers, who wore goggles to shield their eyes from the falling fragments of lime stucco which they used. Fine examples were exhibited from Coles Park, Ashburnham House, Westminster, Holyrood Palace, Belton House, Melton Constable, Acklam Hall, Brickwell House, Grantham House, Groombridge Place, and elsewhere, showing the beauty and technical value of stucco duro as a material for working in situ. In all these examples it was explained how the quality of the material which could be

could be modelled as thin in substance as the petals of a rose or a piece of drawing paper.

THE SECRET OF THE BEAUTY

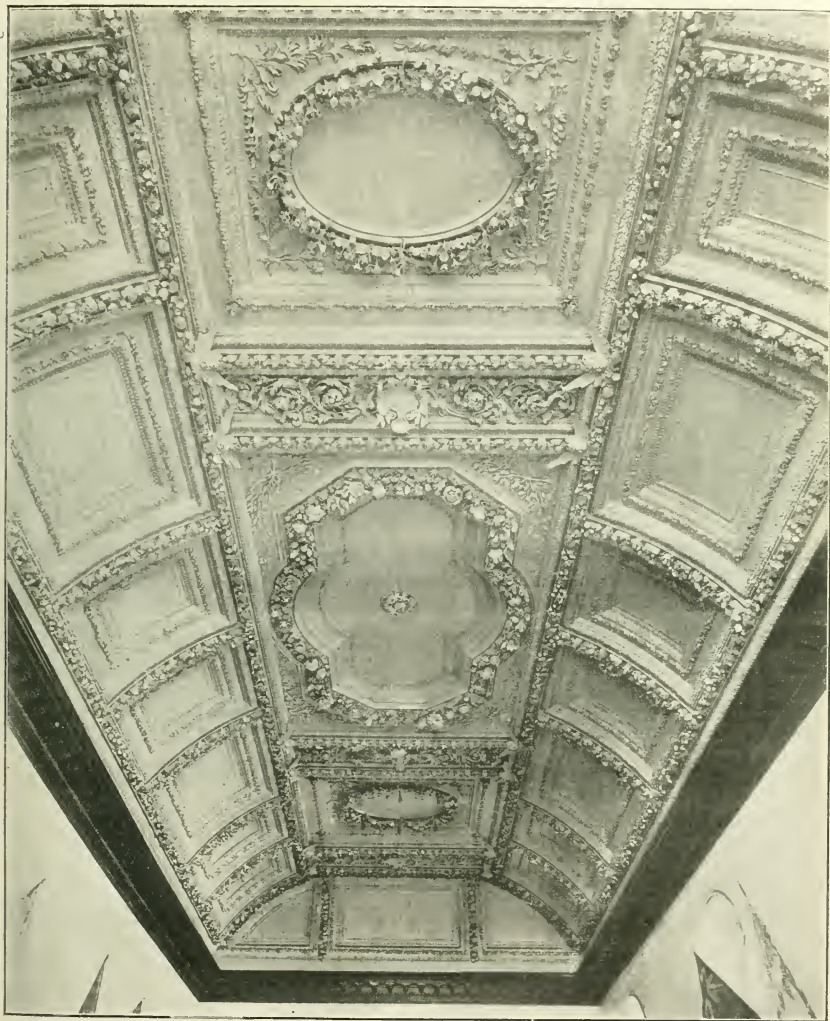
of this work is due to the employment of a particular plaster material and process that has not been available in modern times, the composition and manipulation of which have been lost sight of for two centuries until now. The plaster used for this work is the material spoken of at length by Vitruvius in his writings on Architecture—viz., very carefully selected lime which has been elaked for many years, and mixed with finely sieved marble-dust and various ingredients to regulate the setting as required according to the size of the work, or the thickness of the plaster which was worked in the fingers, or with the steel trowel. This plaster is very fine and smooth, intensely sensitive, and impressionable to the touch and to the desire of the modeller. It has a fine reflective quality possessed by no other plaster, can be worked very thinly and delicately, and dries out very hard.

It will be seen from a glance at the photographs, that by no other process or material could the modelling of this deeply-wrought and overlaid nature be cast or produced, and as an instance, Mr. Bankhart mentioned that twelve years ago, when the famous ceiling at Kilmarnock Hospital, Dublin, was taken down and remade owing to its dangerous condition, the modelled detail had to be reproduced in compressed papier-mâché, because the art of making the old stucco duro plaster, of which the original ceiling was composed, was lost, and the material was thought to be unobtainable. Detail thus wrought and built up in the fingers of the modeller could not be reproduced by casting in any material, or by any mechanical process whatsoever. The art of stucco-working in these islands died just previous to the introduction of the composite decoration by the Bros. Adam, and during the last eighty years it had been replaced chiefly by the mechanical reproduction (in fibrous plaster cast from jolly



Plasterwork executed by Men in Mr. George P. Bankhart's Workshop.

regulated in the setting to any degree of time by the introduction of various ingredients, enabled the modellers to give sharpness of edge, thinness of substance, and depth of undercutting, and relief to any extent; how the flower-heads stuck out from the bulk and were attached by isolated stalks steeped in the same "plaster"; how in some cases the stem-work corkscrewed round and round the highly-relieved lengths and garlands of modelling, and how the leaves and flowers



CEILING OF THE ROYAL HOSPITAL, KILMAINHAM, DUBLIN.

moulds) of clay modelled decoration, based largely on the lines and spirit of the stucco work (erroneously known as Georgian) done under Inigo Jones, Wren, and others. The result in comparison was little short of a dull parody of this really beautiful old work, which was, and is still, desired by many architects. The jelly process is wrong in principle, and no matter how good the original clay model may be, it cannot be modelled like the stucco stuff, and in the manifold process of reproduction loses any

degree of quality, definition, thinness, crispness, and depth of undercutting that the original may have possessed.

Mr. Bankhart wished to call attention to the fact that this old stucco-duro material is now to be had, the secret so far being his own, and that several large ceilings are now being worked in exactly the same Italian stucco-duro material and process as the famous ceilings above referred to. Side by side for comparison he showed some old and modern detail, from which it was seen that

the old material and art are again in being, and available for the first time after the lapse of a couple of centuries.

ANOTHER INTERESTING PROCESS

was that of modelling the leaves, fruit, and flowers, etc., individually, casting them individually in plaster of Paris, or Keen's cement, and tucking them up into a prepared hollow groundwork in situ on the ceiling, as illustrated in two or three examples thrown on the screen. Even this would not give the

same beauty of definition, but it was the next best thing, and required the judgment and arrangement of an artist which was not always forthcoming in the purely mechanical training of the modern plasterer, although there were signs of considerable ability in this direction.

The lecturer said that he had sometimes been misunderstood and accused of predilection, almost to prejudice, for one kind of work in preference to another—viz., the earlier work for the later—but such was in no way the case. He believed he would be borne out by all others who knew anything of the different materials and processes, that each type of work was equally beautiful, interesting in its own way, and equally legitimate according to the rightful use of the

Much good and interesting plasterwork was being done in different parts of the country, and there was every encouragement for the younger generation of plasterers to study and take up the once living art of their trade and to develop it in a manner suitable to, and worthy of, our modern methods of construction—and this he firmly believed would come sooner or later.

The lecturer dwelt at some length on the opportunities offered to architects in the modern system of concrete construction, in the shaping of concrete barrel vaultings and saucer domes for simple decorative treatment, in the arrangement and placing of iron girders to form a scheme of design apart from the purely engineering aspects of their setting, in the decorative treatment of concrete

had frequent opportunities of observing the high-mindedness and disinterestedness he displayed in all that he did for the Institute. A man of the strictest probity and integrity, he placed the honour of the profession and the well-being of the Institute before everything. Mr. Graham, when elected Hon. Secretary, must have been nearly approaching the three-score years and ten, and though at that age his conservative tendencies were somewhat strongly pronounced, he was never intolerant of the views of those who differed from him. At the Council meetings he spoke but seldom, and if he was a little lacking in initiative when some necessary movement was in question, when once a course of action was decided upon he would devote himself to the work expected of him with all the zeal and thoroughness of one many years his junior. His courtesy and urbanity of manners were familiar to us all. No one could discharge with greater distinction the various public and social functions that fall to the lot of the Honorary Secretary of the Institute. He was true and sincere in his friendships, ever sympathetic and warm-hearted, and one of the cheeriest and most agreeable of companions.

At the suggestion of the President, the members rose silently in their places as a mark of esteem and regard for Mr. Graham's memory. Mr. Hare added that he was sorry also to have to report the decease of other old and highly respected members:—Mr. Thomas Miller Rickman, F.S.A., who had been an Associate since 1854, had served on the Council of the Institute from 1859 till 1896, and was a generous donor and subscriber to the Architects' Benevolent Society; also of Mr. Charles Smith, of Reading, elected an Associate in 1854 and a Fellow in 1870, and Mr. William King Lucas, of New Barnet, elected an Associate in 1881.

COLLEGIATE ARCHITECTURE.

A paper on this subject was read by Mr. Edward Warren, F.S.A., Fellow, and was illustrated by over one hundred lantern-slides and a large number of drawings, photographs, and prints hung on the walls. The lecturer remarked that the recognised components of any group of buildings which form the typical English College are ever the same. The chapel, the dining-hall, the master's dwelling, and the dwellings of the inmates of various degrees, with the kitchen and other offices, are the invariable constituents alike of the colleges at one of our old universities, the Inns of Court or of Chancery, the old public schools, or the almshouses. The last are, perhaps, generally supposed to be a library, while at the first that is, of course, an invariable adjunct. The similarity in plan and distribution of parts of almshouse and college was often very striking. The type of plan with which we are all familiar in the colleges of Oxford and Cambridge, at Eton and at Winchester, grew by natural evolution out of the plan of the religious houses, alongside of which they grew up, whereas the dwellings were not themselves founded primarily as religious establishments. The Vicar's Close, at Wells, is an interesting instance of a purely residential college, founded in 1347 for the express purpose of providing lodgings for the chantry priests or vicars choral of the cathedral. It provides upon a singularly narrow site forty-two distinct little houses for its inmates, each complete with living-room, staircase, and bathroom on the ground floor, and a sleeping-room above, the rooms being in the clear about twenty feet by thirteen feet. At the southern or entrance end are the dining-hall and library, with the porter's lodge; at the northern or inner end, the admirable little chapel. The site measures roughly 480ft. by 140ft. at the southern, and 480ft. at the northern end, and the skill of the architect, fortunately unknown, arranged the dwellings upon lines inclining inwards from south to north, possibly with the intention, and certainly with the effect, of increasing the apparent length of the northward vista from the entrance. Anything more charming, of its order, in Medieval architecture, it would be difficult to find. The hospital of St. Cross, without Winchester, was founded



Plaster Enrichment, made by Mr. George P. Bankhart.

various plasters employed, bearing in mind the nature and strength or slightness of the various reliefs needed for the particular work in question. A few examples of the plaster work following this period were then shown, illustrated by examples of Wren's later work, in which the Dutch modellers reintroduced for a time the French type of work very indifferently, also the work of Hawksman, Archer, Talman, and others. The work of the Bros. Adam, who took their inspiration from the Pompeian masterpieces, and gave these islands the last bright flash of artistic plaster work in a plaster composition in which they are financially interested was described. Then followed that degrading period of so-called pseudo-Classicism, in which the London square and streets, and also the provincial towns, revelled for a time in pseudo-Classical ornament that sent a thrill of hatred against plaster decoration, and which had created a prejudice that with a large proportion of the general public (and even amongst some architects) had lasted to the present day, and done so much to retard any real development of the plasterer's art. Mr. Bankhart then passed on to

MODERN MATERIALS AND MODERN WORK, showing by illustrations that a considerable amount of work had been done by living journeymen plasterers, who had by diligence and careful study picked up the threads of past traditional methods of working, and applied that knowledge to modern materials and modern construction with considerable success as artists, as well as as mechanics. This he maintained, was at last a favourable sign of the present times, and gave bright hope of the foundation of a new living school of decorative plastering. The fault, he maintained, was not with the plasters, but was the natural result of the dullness of their training for generations back, and their being left to think that mechanical accuracy and perfection of surface was the zenith of plasterer's work. The covering of the walls and ceilings of our homesteads with insensate printed patterned papers and pulp was but a manifest desire for decoration of some kind, and this was evidence that something better, something more artistic, was desired.

piers and pilasters, the simple vaulting, cross-vaulting and sectioning of rooms and the roofs of houses and public buildings, as illustrated by many slides shown on the screen. Details of many simply decorated flat ceilings, evincing quite a modern spirit in the arrangement of belts of modelling were shown, possessing distinct modern interpretation and refinement of design and workmanship, whilst at the same time reflecting something of the traditional treatment of the past. In conjunction with this, various interesting methods of workings suitable modern plasters were explained. The lecturer concluded with the optimistic hope and belief that architects were giving much more thought and attention to the natural constructive developments of their buildings for decorative purposes than they had done in the past.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The fortnightly meeting of the Royal Institute of British Architects was held on Monday evening at 9, Conduit-street, W., the President, Mr. Leonard Stokes, occupying the chair.

Mr. H. T. Hare, hon. secretary, said he had with great regret to announce the death of Mr. Alexander Graham, F.S.A., a well-known and highly-esteemed member of the Institute since his election as a Fellow in 1870. For twenty-two years Mr. Graham served on the Council, for seven years as vice-president, and for four years as honorary secretary, a position from which he retired in May, 1909. In all these capacities, and as a member of the Board of Examiners, he was most assiduous and painstaking in his endeavours to further the best interests of the profession. Mr. Hare proposed a vote of condolence with the members of Mr. Graham's family, and read a letter from Sir William Emerson, past-president, expressing his personal loss in the death of his old and esteemed friend, Mr. Alexander Graham. He added: "A steadfast supporter of the Institute, he was from the first one of the most active and zealous of its workers. During my term of office as member of Council, as Hon. Secretary, and afterwards as President, I

by Henry of Blois upon the site of an old monastery. The hospital came under William of Wykeham's governance in 1372, and though there is no documentary evidence of rebuilding at his hands, there is considerable architectural evidence of synchronous work, and he is known to have repaired the hospital. His successor, Cardinal Beaufort, brother of Henry IV., enlarged the charity and the buildings. The general plan of the existing building consists of an outer and an inner court. On the east side of the former is the "hundred memnes" hall, on the west are the kitchen and offices, on the south Cardinal Beaufort's gatehouse, the porter's lodge, and the refectory, the entrance from the road being on the north side. The great inner court has the master's lodgings on the north side, the brethren's dwellings occupy the western and half the southern, while the large cruciform chapel with its central tower commandingly occupies the south-east angle, and is provided with a covered cloisterway or ambulatory, along the east side, with the gatehouse buildings. It is all thoroughly collegiate, finely planned, and beautiful in detail, and provided with ample grounds and gardens, the noblest and most interesting of ancient English hospitals. Though many Medieval colleges retain portions of monastic buildings, and some of those deliberately built as colleges copied the monasteries in respect of internal cloisters, they contain no such features as the church, the chapter-house, or the common dormitory or "dorter," the last a typical and invaluable relic of the monastic life. The typical feature of all ancient colleges is the claustral plan, the enclosed court or quadrangle; and the typical early college plan is a simple quadrangle entered in the centre of one side, under a gateway tower, and containing the chapel, the master's lodge, the library, generally on an upper floor, the chambers, the parlour or common room, the hall opposite the entrance, the kitchen and refectory. The students slept three or four in their chambers, or in the roof garrets, the corners of the chambers being sometimes screened off as studies. Both at Oxford and at Cambridge it was in the late 13th and early 14th centuries that colleges, upon a deliberate and carefully-considered plan, both as to buildings and constitution, and intended largely for the maintenance of secular students, were first founded and built. The earliest of English colleges in the modern sense—Merton College, Oxford—was founded deliberately by Walter de Merton as a training school for "secular" clergy. The statutes of Merton, the model of subsequent foundations, both in Oxford and Cambridge, date in their earlier form from 1264, and in their final form from 1274. The completed 1294-97 or thereabouts, and unusually magnificent. The fine "Fellows' Quad" was built about 1608 to 1610, and its front to the meadows is a beautiful example of its style. New College, founded in 1379 by William of Wykeham, set the fashion in plan and manner of buildings for subsequent centuries. We find at New College the full acceptance of the quadrangle or cloister plan, and the usual inclusion of an actual cloister, monastic in type, a cloister pure and simple, leading to nothing but itself and its bell tower. It is the last of its kind, having no chambers around it like all subsequent college cloister courts. The Mediaeval portion of the college, still the nucleus of the whole group, consists of the great quadrangle entered on the west side under an imposing gate-tower, flanked on the right by the ample "lodgings" of the warden, and on the left by the porter's lodge. The north side of the quadrangle is occupied by the chapel and dining-hall. On the east are the library and chambers, on the south again chambers. The cloister lies to the north-west, with its admirably simple unbuttressed bell tower on its north side. Rarely has its gardens. The upper story was added late in the 17th century, with lamentable detriment to the proportions of the front quad, and to the relative scale and dignity of the chapel, and the back quadrangle was added in 1684. New College, conspicuous in rare beauty and

charm, is of extreme importance as the most complete surviving example of a deliberately planned Mediaeval college, in the educational sense, attached to a university. It became largely the model for subsequent college building both at Oxford and at Cambridge. At New College, Bishop of Wykeham, Bishop of Winchester, Edward III.'s buildings, founded his college of St. Mary de Winton at Winchester as the preparatory school for young boys who were to be passed-on to his New College of St. Mary de Winton at Oxford. The building of Winchester School seems to have been begun in 1387, and Logan's view shows at once the striking similarity in type, detail, and actual arrangement between it and New College. The school is entered in the same way beneath a gate-tower, and again you have upon the immediate left hand the chapel, and further on the hall, in a continuous range. The building materials are different. As at New, the claustral plan is fully accepted, and there is a small actual cloister very similar in detail to that at Oxford, but almost filled by a completely detached tower, since its bare mouldings exist within the later buildings. The master mason was one Raynold, or Raynolds, and it was supervised by two Fellows, Richard Gosmore and Thomas Pratt. The new building of 1735—a fine, plain, well-proportioned structure, contains excellent oak staircases and admirably panelled rooms. The design was the work of a member and former Demy of the college, Sir Edward Houlston, who desired to demolish the greater part of the cloisters, and to build a great quadrangle, linking up the chapel hall and Great Tower. At Cambridge there were earlier colleges than New, and many earlier than Magdalen, such as Peterhouse, 1284; Clare, 1326; Pembroke, 1343; Trinity Hall, 1350; Corpus Christi, 1351; Gonville and Caius, 1348; and King's, 1351. Peterhouse has lost its 13th-century aspect, though some of the original fabric remains, now masked by later facings. Clare College has little or nothing to show of its 14th-century foundation. It took quadrangular form early in its career, but on a small scale. It was much rebuilt after a fire in 1521, and in 1638 the new quadrangle was begun, Thomas Grumball being master mason or architect, and John de Witt, builder. Grumball, the well-known bridge-builder in 1640. The work seems to have begun again with the Restoration, and to have proceeded between 1662 and 1715, Robert Grumball being the architect. The present chapel was begun in 1763, the old one being then pulled down. Sir James Burrough was its architect, succeeded after his death in 1764 by James Essex. At Pembroke College there is still something of the Mediaeval early college to be seen. The hall was rebuilt in 1452, and in 1663 a large part of the second court was begun. Sir Christopher Wren's chapel, of extreme interest as the somewhat naive and inexperienced early work of that great architect, was consecrated by his uncle, Bishop Wren, in 1664. It was joined up with the old court by a new range of buildings in 1668. Corpus Christi, with its complete quadrangular plan, the earliest at Cambridge, and must have been a dignified and interesting college. Its front court was, however, practically rebuilt between 1823 and 1827 by William Wilkins. The delightful little back court still exists. At Jesus College, where pre-existing conventual buildings were absorbed, the inner remodelled cloister court is entered from an outer one which leads to the beautiful old convent chapel. The normal college plan at Cambridge is seen in Queen's, 1448; Christ's, 1505; and St. John's, 1508. In all of these the chapel, hall, kitchen offices, parlours, master's lodge, library and chambers were ranged round a quadrangle with a gate-tower opposite the hall. Eton was designed to be

contributory to King's College, Cambridge, as a preparatory school, precisely the same type as its Oxford and Cambridge contemporaries. Its plan is claustral with two enclosed courts, one—the further around, a large chapel occupying the whole of one side of the first court, and the hall a somewhat position in the second. It was largely built in brick, with delightful effect, stone, except for the chapel, being sparingly used. Two almshouses or hospitals followed similar lines of development to educational colleges, and in both, the type of college plan having been firmly established and still adhering very generally to the claustral plan, hospitals and colleges continued, and to a large extent still continue, to follow the arrangement of enclosed courts. That acceptance was evolved from the ordinary monastic plan, which was also the accepted domestic plan of coeval building, and may be found in houses of any size or dignity built up to the 17th century and even later, and, as long as the height of the enclosing buildings is small, or the internal dimensions of the court are relatively large, it is an excellent and architectural speaking most successful plan. But as the height of the surrounding buildings grew with the need of increased accommodation, it began to show demerits in its exclusion of sunshine and free air currents. So the practice began of leaving out the fourth or southern side to the quadrangle, or merely replacing the buildings by a relatively low screen wall. Dr. John Caius, a native of Norwich, who refounded Gonville Hall as the college of Gonville and Caius, Cambridge, has the credit of being the first to make this innovation, though Magdalen College had a front quadrangle open to the west. The pride of Cambridge, the largest, and in many ways the finest, college at either of the old universities, is Trinity College. It is not, however, a homogeneous and deliberately planned college. Trinity swallowed up several colleges and several hostels, parts of which were converted or rebuilt, and other parts of which remain. The charming fountain, built in 1602, was rebuilt in 1716. Ralph Symons was the master mason or architect of the early 17th-century work at Trinity, as of the second court of St. John's, in the library of which college some of his drawings are preserved. He entered into a contract, together with Gilbert Wigg, and lost one of his bricks during the process of his work. The brick building at Emmanuel College, begun in 1632-3 by John Westley, bricklayer, and Henry Man, carpenter, was finished in 1634, and still remains practically unaltered but for its dormer windows. The plan of the open-fronted "quadrangle" grew in favour, both at Oxford and Cambridge, and though many colleges, out of conservatism or desire for the utmost amount of housing-room, still stuck to the ancient plan of complete enclosure, a great many adopted Caius's plan, and by the end of the 17th century had become quadrangles common. It is obvious and general a treatment that it was by no means essentially collegiate, though commoner here, perhaps, in colleges than elsewhere. Nearly all our great public buildings have internal quadrangles. Where, however, it was desired, for reasons economical or other, to have the effect of the completely-enclosed quadrangle, some colleges, and notably Peterhouse, raised their buildings or open colonnades or arcades so as to obtain that free air-passage or perflation which we now so much value. It is an excellent and architecturally effective plan. At the old universities, as elsewhere, in the 17th century was a busy time of building. A great deal was done at Cambridge, and at Oxford the days of King James I. saw the building of Wadham College, which is the most complete, homogeneous, and unaltered college at either university. Mr. T. G. Jackson, in his most interesting book upon this college, of which he is a Fellow, states his clear opinion that a certain William Arnoll, or Arnold, who is described as a head workman, and was paid £1 per week, was the actual architect. The plan is simply direct, and traditional. A large single

quadrangle is entered on its west side by a central gate tower, which is faced by the continuous range of chapel and hall. The warden's lodging is on the north side; the remainder of that side and all the south range contains chambers. The general character is Gothic—the chapel, with its tracered windows, especially so; but details of a pseudo-Classic character, in the well-known Oxonian manner, abound. The 17th century was no less prolific in almshouses than in colleges of learning. Sackville College, at East Grinstead, built a few years after Wadham, is a good example. It was founded about 1616 by Robert Sackville, Earl of Dorset. One of the statisticians of English almshouses is the Abbot Hospital at Guildford, begun in 1619. This has a great gate-tower, with four octagonal angle turrets, in the manner of a Cambridge college, though its founder was an Oxford man. It has a fine quadrangle, and the handsome brethren's dining hall, the fine staircase, the panelled corridors, and splendid details all testify to the confidence of its founder, Archbishop George Abbot. Complete with chapel, hall, stained glass, heraldry, and everything handsome about it, it is a typical college in disposition and detail, and its fine, warm brickwork is delightful in colour. Contemporary with Wadham at Oxford is the Fellows' Quadrangle at Merton, before alluded to, and closely following the front quadrangle at University College, begun in 1624, but not finished till 1674. In 1637 the well-known porch of St. Mary's was built, in 1640 the wonderful staircase at Christ Church, and in 1646 came Brasenose College. At St. John's, Oxford, the fine second quadrangle, with the incomparable garden front, were finished under Laud between 1631 and 1635. These are persistently attributed to Inigo Jones, without any definite warrant; they are quite unlike his known work. At Cambridge, Peterhouse Chapel and screen (1632-3), the brick building at Emmanuel (1632-4), and the charming Pepsian Library at Magdalen (begun between 1670 and 1680) all attest to the vigorous collegiate instincts of this eventful century. The period between 1660 and 1750 left us some of the finest individual collegiate buildings that we possess. Oxford possessed in Queen's the most interesting example of an Early 18th Century college—a college, moreover, that has the distinction of actual work by Wren, and much by his pupil Hawksmoor. Of mediæval foundation, it was entirely rebuilt between the reigns of Charles II. and George II. It is extremely difficult to apportion with certainty the work of master and pupil; but the hall and chapel were undoubtedly designed by Wren, who spoke of this design as one of his best works. The library, which separates the Fellows' quadrangle from the back quadrangle, is attributed with confidence to Wren, and it seems more than probable that the general inception of the designs for the reconstruction of the college came from the master, working in intimate collaboration with the pupil, who subsequently carried out most of the buildings. The completion of the front quadrangle, with the street-front and screen, and the picturesquely unconstructional cupola, are clearly Hawksmoor's work; but it is probable that Wren had some say in the fine planning of the quadrangle, with its three open cloistered sides, affording covered communication with all its buildings. This front quadrangle is in plan and proportion, a model collegiate court. At Oxford, Wren's earliest work seems to have been Trinity College Chapel 1667, followed closely by the Sheldonian Theatre (1669), the Ashmolean Museum (about 1680), and the belfry at Christ Church, known as Tom Tower, finished in 1682, and designed in the Gothic manner, and the most completely satisfying of his essays in that style, showing a balance, a harmony, and an adaptability that witness to his amazing fertility. At Trinity College, Oxford, the north wing of the garden quadrangle (1665) is attributed to Wren, who built the chapel in 1667. T. Strong being the master mason. At Cambridge, the chapels of Pembroke and Emmanuel and the

superb library of Trinity College swell the list. The last, built of brick faced with ashlar, was begun 1675-76 (Wren's original proposition having been a circular building with a dome), and forms the west side of Neville's Court, which lies between the great court and the 'backs,' facing the dining hall. It is somewhat recalls, Sir Christopher Wren's plan at Venice. Wren here placed the lower side of the library floor at the springing level of its arcade, in order to get full height internally for the tall bookcases, and the window range above, without dwarfing the quadrangle by a lofty building, and also to keep his horizontal lines in some conformity with those of the colonnaded sides of the court. In 1672 Wren had designed the new buildings for Christ's Hospital, better known as the Blue Coat School, in the City of London, a broadly treated, simple, and beautiful building. It is confidently asserted at All Souls' that the fine screen in the beautiful little chapel is by Christopher Wren, sometime Fellow of that college. Morden College, Blackheath (1695), is generally ascribed to Wren; but Messrs. Belcher and Macartney ascribe it rather to Nicholas Strong, the mason so much employed by Wren. It is probable that Wren largely inspired and supervised the designs. To a greater, more inspired, and more scholarly architect—Sir Christopher Gibbs, who may be considered as one of the direct heirs to the Wrennian or English Palladian tradition, and who studied under Fontana in Rome—Oxford owes the magnificent design of the Radcliffe Camera, and Cambridge those of the splendid Senate House and the beautiful Fellows' building at King's (1723). The latter was a part only of Gibbs's plan, and forms the west range of the existing court. Gibbs, in this instance, actually superseded Hawksmoor, whose more ambitious and expensive plan (1712-13) included a large quadrangle, a cloister-court, and a bell-tower. The ancient almshouses or hospitals are, like the colleges, not of English origin; but like the latter, have survived here, while they have largely died out abroad, and have become typically English institutions. In conclusion, Mr. Warren offered a few suggestions as to the details of college planning. If you adopt, he observed, the quadrangular plan, you will be wise, unless the ground and other circumstances permit of the courtyard with low surrounding walls, or, to provide an open front to the south, or else to have open corners, which can be bridged by arches, to admit of air-currents. Such open corners can be easily and effectively managed if you adopt the cloister ground plans with arcade or colonnade. Or you can, perhaps, find useful suggestions in the double-screened or pierced ground story of Peterhouse. As the plan of repeated staircases, with their dependent groups of rooms on each successive floor, still stands, and is likely still to find favour in college circles, may be for a moment to consider some of its possibilities. But if you arcade your ground floor, you must narrow the depth on that floor available for rooms, and will probably find that lecture-rooms, bursaries, single rooms for non-resident tutors, or single sets can best be placed there. If bathrooms are supplied, the bedrooms can be very small—say about 100 square feet, or even less. Bathrooms are very generally placed in the basement, and in such cases the ground floor is raised a little, so that window-heads can be brought slightly above-ground, does very well, provided that the necessary areas for light and ventilation can be outside the quadrangle, and wide enough, and that fresh-air inlets are provided in the quad, so as to give a cross-current. The baths are generally arranged in cubicles some 7ft. by 5ft., with partitions 6ft. high or thereabouts, and raised well off the floors. A service-room for keeping and drying towels, and a general dressing-room, or two, is an absolute necessity for lockers. If you have a bath-room, and consequent bath-boiler, in the basement, a hot-water supply to each pantry can be arranged. The Fellows' rooms are usually now in sets of three—a large tutorial-room, a smaller sitting room, and a bedroom—and

should have an "onk." College bursaries are merely offices for college business, and should be placed near the entrance. There must be at least two well-lighted rooms—the bursars' and bursary clerks'—and a strong-room and lavatory. Frequently more rooms are needed. The master's dwelling has grown from the few rooms formerly allotted to collegiate masters, and is now complete domestic dwellings for married men, much like a good rectory house in requirements, but with a really large study or library, with an anteroom leading to it. The dining-room should also be large. The common room has expanded into a group of rooms, constituting the Fellows' private club. The junior common room is the undergraduates' club. It is useful to provide a second room for reading and writing, and for both senior and junior common-room groups a distinct lavatory is advisable. Residential colleges for women are multiplying and extending, and growing in architectural importance and beauty. These naturally require somewhat different arrangements, the general system being more domestic, and open-air passages and basement bathrooms being usually avoided. The chapel of a college is traditionally a chancel, screened off from the ante-chapel to which the non-collegiate are admitted, and is the survival of the monastic choir screened from the secular hall. A college chapel, if of greater height than adjacent ranges of the building, and placed axially more or less east and west, should, if on the side of a quadrangle, be always on the north side, so as not to cast its shadows where shadow is detrimental. The same observation applies to the hall, if lofty and if similarly placed. The college dining-hall is the great social centre, and the common meeting-place of the college. It has to serve for examinations and special assemblages of various sorts. It needs careful lighting at night, as by day, and careful warming and ventilating. Low- or high-pressure hot water systems, fresh-air inlets, and the electric fan provide for these requirements. The recognised collegiate plan for libraries is not only picturesque—i.e., architecturally effective—but practical. The double bookcases, standing at right angles to the walls, give increased book-space, and at the same time divide the room into secluded bays where students can sit at tables and work in comparative isolation. The bays should be not much less than 9ft. between the bookcases, and will be better from 10ft. to 12ft. wide, where tables are to be inserted; and this arrangement implies a window to each bay. North and east are the best main lights; but if a long library is lit from its north and south or east and west sides, blinds or curtains will be needed on the south or west sides. In planning a non-residential college, or the modern university college of a large town, and intended for both sexes—the problem becomes very different. The chapel is usually not of its required, the hall subserves different purposes, and is usually a speech-hall; lecture-rooms, lecture-theatres, and classrooms, scientific laboratories and workshops, are needed, and not infrequently some sort of museum is added, and a gymnasium is not unheard of.

Mr. Basil Champneys, in proposing a vote of thanks to Mr. Warren, remarked that there were one or two problems connected with collegiate planning which still needed solution. It was very puzzling to consider how the prevalent arrangements of a college came into being. Every monastery was provided with a common dormitory, whereas students were housed on a totally different plan in houses of two or three floors, having staircases leading on right and left, into series of small rooms. Where the monastic plan was adopted, the apartments were utilised for other purposes than in a monastery. Indeed, there was no hint that monastic precedent was observed in a university town. The only plausible theory was that a university college was evolved from a conglomeration of small halls, occupied as hostels, and this would account for the separate staircases to small sets of rooms.

In any case, the staircase plan had held its own as the most practicable arrangement. Many years ago the speaker made an exhaustive examination of staircase and corridor plans, and ascertained, by careful comparison, that the former was at once the most convenient and most economical arrangement. A practical disadvantage in the corridor plan was that in modern schools when this was adopted the long gallery was used for fighting, football, cricket, and other noisy games, and became a nuisance to the studiously-inclined men. In women's colleges this drawback was not noticeable, and the corridor was less disadvantageous. In modern college planning the predominance of science teaching necessitated the provision of numerous well-lighted laboratories and classrooms. This presented fresh problems which would have to be solved by the architects of to-day.

Professor F. M. Simpson seconded the vote of thanks, observing that in England the roots of our universities had struck deeply into the soil, unlike in Italy, where the students migrated in bodies from one city to another, and a centre of learning in one generation was entirely deserted by the students of the next period. The Italian universities flourished before the 14th century. In German universities lodgings were provided for the classes represented by tutors and Fellows, but no housing provision was made for undergraduates. Paris was the first university to adopt the college system, and from thence it spread throughout France and Flanders to England. It was a problem why the fifty colleges once in Paris ceased to exist. They were probably emptied at the end of the 16th century and the beginning of the 17th century by the religious controversies and civil wars—disturbances of thought that in England were contemporaneously solved by the Reformation. This brought to an end the supply of clerical students; but almost at the same time the Renaissance created in this country a thirst for classical learning, and resulted in a great increase in scholars in colleges. It was difficult to say why this did not also occur in Paris, as in Oxford and Cambridge, unless it was that the students left Paris for the Jesuit colleges in other towns. He regretted that Mr. Warren had not dealt with the modern requirements of colleges, especially the great laboratories that were urgently necessary, and which demanded designing lofty rooms with huge windows, and halls reduced to a minimum. Indeed, the three essentials of a modern university building were light, more light, and yet more light.

The Rev. J. B. Lock, of Cambridge, said Mr. Warren had failed to refer to the long gallery, generally leading to the master's lodge, which was a feature of some of the Cambridge colleges—notably Queens', Pembroke, and St. John's. He thought Mr. Champneys' question as to how our university colleges evolved their plan might be answered by reference to Haddon Hall, which was almost an exact replica on plan of an Oxford or Cambridge college, with its screened hall and chapel on the north side of a quadrangle, round which were grouped the combination room, library, kitchen, and long gallery, and other dwellings for domestics beyond the quad. It was to be regretted that the lecturer did not show how the original college arrangements had of late years been dug out of Gonville and Caius College at Cambridge, from under the extensions made by Savin and earlier architects—the original hall and library had now been recovered. Mr. T. G. Jackson had solved the problem of affording adequate light and air to the new quadrangle consisting of the Geological Museum and other buildings at Cambridge by carrying the Law Library on a range of open arcades.

Mr. T. G. Jackson, R.A., believed that the plan of the Oxford or Cambridge college grew up accidentally. At first only a university existed, with no colleges, and young men were lodged in a number of small halls which were leased to men who at first merely

housed, and rarely taught, the students. At an early period in the history of Oxford there were over three hundred of the little halls, or inns, each, like a separate house in a street, being independent of its neighbours. By degrees these little halls were absorbed in colleges. The halls, and also the colleges, were designedly different from monastic institutions, between which and the colleges there was great rivalry, and often ill-feeling. Walter de Merton, for example, ordained that members of his college were on no account to take religious orders. Fifty years ago the college rooms were arranged and furnished much as in Medieval days. The original plan was that a set of rooms consisted of a large apartment where a Fellow and a few scholars lived; off these were three little closets or studies, each provided with a shelf, stool, and curtain, but with no stove, and here the young men did their reading.

Mr. Aymer de Vallance agreed with Mr. Jackson that our colleges were not specially planned for the purpose, but were gradually evolved; but he considered there was no rivalry or ill-feeling between college and monastery. In the earliest type of college the chapel was not *de rigueur*. Each college constituted a parish, and afterwards applied for permission to establish an oratory. At a later period the cloistered quadrangle was used as a graveyard. He exhibited a series of lantern-slides showing comparative plans and elevations of eight college chapels in Oxford, and argued that, while all had the T form on plan, Merton was the only one which consisted of a choir, transept, and central tower to which a nave had been intended to be added. In all the other seven cases the fabric consisted of an aisleless choir and very short nave with deep aisles, as at New, Queen's, Wadham, Oriel, Brasenose, and elsewhere.

Mr. Warren, in reply to the vote of thanks, explained that he had not assumed that the T-plan of college chapel invariably provided for transepts and no nave, as Mr. Vallance had suggested.

"BUILDING NEWS" DESIGNING CLUB.

A DETACHED WATER-TOWER.

The materials for this structure were not strictly limited, as perhaps they might have been, and restricted to ferro-concrete; but those most competent to deal with that material do not happen to be members of our Designing Club, and perhaps, if specialists were members, they in their turn might not stand much chance when dealing with our more ordinary subjects. We might, of course, have laid down some hard-and-fast condition designing the construction of the hill, the designers in that way, and risk the chance of many abstaining, in consequence, from entering the lists. Such a restriction would have facilitated our duty in deciding which proposal sent in should rank as the best, the conditions being uniform as to material, instead of having to determine the competition on broader lines, with the choice of brick or concrete, or a combination of both, being left to the competitors. We decided on the latter course, and quite realise its objections, the result, as a matter of fact, being that in some cases the schemes submitted are faulty structurally, being neither one thing nor the other, but a mix-up. We have placed "Veritas" first, "Black Diamond" (device) second, and "Why Not" third. The following were the instructions for competitors:—

"A Detached Water-tower.—The tank to measure 50ft. diameter, and 16ft. high at the sides, and the height to its base from the ground line is to be 50ft. The site is on the slope of a hill, the tower standing on a flat plot levelled for the purpose on a rock-bed foundation. The main point to observe, in so far as the appearance is concerned, is that the tower will form a feature on the profile of the hill from the distance. A means of access to the tank (which must have an

arched bottom and domed top, in addition to the height at the sides) is to be provided. This probably would be best arranged as means of a circular spiral iron staircase of the middle of the tank, which will be built up in sections, resting on iron bearers below its bed to carry it. The construction may be in brick or in ferro-concrete, faced with brick or rendered in cement. The tower may enclose the tank or not, if the competitor wishes to make a feature of the tank by showing it outside; but, anyhow, it must be roofed in, and on the top an outlook gallery of small size should be arranged as part of the scheme. The shape and materials of the roof are left to the competitors; also the architectural treatment. The wind-pressure of an exposed situation is to be allowed for. This applies more to schemes of open design in the construction of the supports. Scale 8ft. to the inch. Four plans, one through section, and one elevation, and a view."

"Veritas" displays a directness avoiding any excessive concern for precedent or reference to an architect to be followed, without hesitation on the object of the design for the style of its treatment, and without fear displaying the tank in a sensible way. The structural connection between the concrete piers and the octagonal walling, done in brick, would be liable to fracture, owing to the more compressible nature of the brickwork, and if a straight joint is intended, to obviate such a contingency, the size of the concrete piers must be considerably reduced to permit of the brickwork completing the octagonal shape of the walling, or the wall must be modified and lessened just where bonding at the angle is most needed. The absence of access to the tank is an oversight common to "Veritas" and "Why Not," "Black Diamond" being the exception, for which we give him the credit due. "Veritas" does ventilate the water-tank, but no overflow is shown. The vertical lines of the buttress-like projections are empty, though, without emphasising the verticality further, the view from the windows on each face, as here intended. A different treatment of the windows, and so set as to suggest a binding of the walls by a horizontal scheme of fenestration, or even a spiral arrangement, would have been an improvement subordinating the windows in either case to openings of much smaller proportions. The shaped weathering at the top of the buttresses would not be seen from the tower, and the gallery itself could only appear from the distance. The general outline is good, and generally the scheme is commendable. The piers suggest the criticism that they display, as we have already intimated, more of a buttress treatment than piers schemed as weight-bearing erections. At the same time, it may be urged that columns often taper, and this batter shown by "Veritas" does improve the outline, and adds to the stability of the tower structurally.

"Black Diamond" is more modest, a pleasant, but less graceful, more detailed in his working out, but less pleasing to the eye. This is partly due to his style of drawing. Of course, we should not actually see his domical roof unless we chanced to get on higher ground or stood a long way off. The eylets by way of dormers are not an improvement; but the open pier-like method of design, as well as the recognition of the tank as part and parcel of the whole structure, must be acknowledged as being praiseworthy and well adapted to the object of the undertaking.

"Why Not" need not have put four doorways. The plinth suffers in appearance by having so slight a vertical finish. The doors look like mausoleum portals. The upper part suggests a pignon tower or columbarium connected with a crematorium. The drawing is excellent, and the outlook top turret of emerging is pretty enough. Ventilation is thought of, but not included in the water-holder. The vertical piping is encased suitably, and there is a washout waste provided. The design is not commendable from a structural standpoint. The walling in brick is wasteful, if the ferro-concrete

piers are intended to carry the tank, for which they look, however, rather inadequate as shown by the plan. If the brick is merely a facing only, the overlying courses are a sham, pretending to do serious work, instead of being incapably weak and doubtful of their own upkeep. This shortcoming the section suggests plainly. The compressible brickwork has little affinity with the concrete rigid backing, and we doubt the stability of this sturdy-looking tower. We should not have placed it third but for the faults of those who follow on. The height is not great enough, and the necking seems to belong to a column rather than to a tower. The "five towns" brick pure set out on projecting courses every foot or so, giving a rusticated look. Intervening arches of concrete span the spaces; but these might look rather thin, and the tower seems to want a rather stronger bearing at the bottom of the tank, which should have had an inverted bottom, so as to bring the weight towards the centre. There is no outlook gallery such as we bargained for. The sheet is not well arranged for illustration, which is an oversight of much importance. A good contrivance of the subject in this respect necessarily weighs with us. The general outline of this design is very meritorious. The consoles to the octagonal tank look better in the perspective than in the elevation. So slight a projection, however, could never cast such a big shadow as this view displays.

"Five Towns" sends quite a capitally-arranged sheet which might have made an excellent illustration. His tower, if built, would look striking enough. The author is a clever fellow; but, for all that, we are sorry not to be able to do better for him than this, because the topmost enormous erection, with eight columns and figure statuary, would be out of place on top of an iron tank bolted in sections together round and added to arch framing, thus surmounted with a pile of masonry or stucco building much too large and entirely out of keeping. The thorough way in which the plans show many details we have taken cognisance of, and we notice, too, now, the spectator would have to squeeze round in order to pass these columns and piers projecting into the outlook gallery so as to leave hardly any space to get by. The manhole into the tank is from this gallery. Instead of access being provided from off the spiral stairs. The dome would be quite lost to view. Indeed, the perspective only just indicates the tops of the circular dormers, which cut up the cupola, when one might get a chance of seeing it by being in an aeroplane or on the top of the hill.

"Briton" reminds us of the petrol-tanks sometimes seen near motor-works or taxicab emporiums. He subordinates everything to the tank, and four slight uprights, well fortified by steel bracings, look less than equal to the task which perhaps they are capable of undertaking with the aid of the circular stair-shaft in the midst. The "view" is not really in perspective, and not even in horizontal perspective. Neither is it exactly a true elevation; but it is titivated up, with impossible-looking surroundings, indicative of a level site backed by trees, shrubberies, and rock grotto work, suggestive of an embryonic sort of pleasure-place. For an engineer's scheme, the awkward domical floor of the gallery outlook space is lacking in convenience, and we did not want rainwater to be shown draining from the roof and foot to the tank, the drinking-water reservoir as here detailed, with its iron domed top, to keep out leaves and little birds. "The author" enriches round the bottom verge of the cement-finished tank is not needed. Such a novel structure might well discard all world decorative details such as this hackneyed ornament, made by the mile—and a poor sort of fussiness, too. The evel peep-holes in the dome are ugly, and would fit badly on a saucer-like roof, as here shown, but wrongly delineated. We do not say that "Briton" is wrong in treating a water-tower on the lines chosen. We should not prefer that style of thing personally; but

it is chiefly at fault owing to the way in which he has carried the idea out.

"Liver" is sturdy; but we are left to surmise how much is to be in brickwork and how much in concrete; in fact, but for the words "brick facing," we should have thought concrete was intended throughout. The tower is octagonal, and of the same area as the tank above, with eaves at varied heights, and a massive belvedere on the summit of the sloping tiled roof, a lead-finished dome covering all. The big projections where the parapet is carried up on the cardinal faces would much obstruct the prospect seen in that direction, save for elevated and far distant objects. "Liver" has not risen to the occasion, which is a pity, and his tower looks squat and unimaginative.

"Theos" is in favour of a square tower, panelled out with grilled glazed windows, and an open outlook shelter at the top. The pilastered body of the tower has much too poor a plinth, and a deep frieze, with an ungainly cornice; and yet, with all its defects, the scheme is not so bad-looking. The chief fault is due to its disregard for a truthful expression of what the tower is built for. The cornice and frieze go round the tank without regard to their position or structural exigencies, and considerations. The tank is circular, and the tower is square, while in the section the big and massive cornice looks as if its weight had to be bolted on to the thin walls of the tank, which is carried over from pier to pier, and it is not made quite clear how. "Theos" marks the word "cantilever from each column," and there leaves the problem till after the contract is signed, and it is then the variations begin.

"Ne'er Do Well" is doing better. His perspective this time is quite the best of any submitted, and his scheme is pretty enough. The enriched brickwork, above recalls the pigeon-house at Varengeville, where the Maison D'ango stands, near Dieppe. That building is a delightful example, dated 1530-1542. "Ne'er Do Well" puts a circular top on a square tower, and corbels over, with four long-drawn-out segmental projections, which result in a great effort in a flat sort of way, and which run into herring-bone brickwork, where their horizontal corbelling courses would puzzle the brick-layer and make a lot of cutting, without insuring strong work. Strength is what is most wanted in a water-tower. The double conical roof, with the wide eaves, make a pleasing variety of lines, the upper stage being justified by the introduction of an outlook gallery, to reach which the spectator has to run over the top dome of the tank constructed of iron set inside, the brick-work being built round it, and never to be got out should it ever rust away and leak. The weights are worked out in figures at 13 tons to each super. foot of pier. The spiral stair looks to need stays, and we can only get into the tank by way of a manhole. The tank all is dark, with no ladder to get down by, and no ventilation.

"Benvenuto" sends a skeleton tower with landing-stages open on all sides, and a very small stairway puncturing the tank and set out of the centre to reach a look-out place on the roof of the cistern. "Moroni" is somewhat similar in his scheme, the divisional knife-edged-looking supports being carried up buttress fashion, but treated so as to look like wooden boarding shaped on the outside face.

"Burch Wallis" sticks to old methods, and submits a big brick tower, square below and octagonal above, with a dome on top. Such a plan on one corner of the substructure. There is no belvedere, and the perspective is not a success. "Nil Desperandum" makes the tower outline look very like a sauceman with the handle on top left standing on a lamp-heater. The frame is of open-work, and the iron tank gets no bearing below to help uphold it in position. "Vampire" is neat and practical; but we cannot call the design imposing or effective, panelled out like a tin tea-caddy. "Cheer Up" is depressing with his over-ornate scheme, and the perspective is wrong way set on the sheet.

The author has expended much thought and much care; but if he had taken the precaution to read the rules he would have observed that tinted shadows are not allowable. "Country Yokel" is practical enough, but has a poor idea of architectural fitness. The little columns faking up the angle piers are very incongruous, and so is the plan of the tank itself, enormously thick at the corners and excessively thin in the middle.

FORGERIES DETECTED BY ANALYSIS OF PIGMENTS.

Professor A. P. Laurie, of the Heriot-Watt College, Edinburgh, the newly-appointed Professor of Chemistry to the Royal Academy, lectured on Monday night on "Pigments, Old and New, and their Value in Detecting Forgeries," before the Royal Academy of Arts, Sir Edward Poynter, P.R.A., presiding. The history of art was, said Mr. Laurie, marked by the introduction of new pigments from time to time. The lecturer enumerated the list of pigments which were in use at the time of Pliny, and illustrated this part of the lecture with specimens of the minerals employed for the preparation of these pigments, the actual preparation of one or two before the audience, and rubbings of some of the pigments in oil. He then pointed out what pigments had been introduced in addition to these at various times in the history of art up to the present day, such as the discovery of the preparation of real ultramarine, the introduction of lakes prepared with alum, and the introduction in more recent times of such pigments as chrome yellow, cadmium yellow, artificial ultramarine, cobalt blue, and oxide of chromium green. By a close examination of minute portions of a picture they should be able to tell whether or not the work was a forgery, and very often the period at which it was painted. There were two or three methods of investigation. He himself had been experimenting with minute portions of a picture, and had found that a great deal could be done by performing a surgical operation on the canvas with a very delicate instrument. Having extracted the fragment, it could be mounted in paraffin, cut into sections, and examined under the microscope. By that method of investigation it was quite possible to identify the various pigments without doing the picture any serious injury. He could not help thinking that that line of inquiry might very well be followed up, as it would bring out some very interesting information as to the pigments used at various times in the history of art. So far as literary evidence went, there were many perfectly absurd and unworkable recipes, and only by actual experiment could one determine their composition. He was told by picture dealers that they doubted whether such methods could be of any value, because if the public believed that a picture was a Raphael, and if a man was willing to pay the price of a Raphael, that picture was a Raphael. That was, however, a different point of view. He thought, as a man of science, that he ought to go on, even if the results might be occasionally disastrous to some of the pictures in our great national collections. A systematic plan for the identification of blues when mixed with white lead was shown, and many micro-photographs of Lumière's actual pigments magnified to 200 diameters. Micro-photographs of the pigments actually found on an illuminated missal letter of the 15th century were thrown on to the screen and the means of identifying them explained. The bearing of these experiments on fixing the date when a picture was painted was pointed out, and the value that such tests might be in determining whether a given picture was a recent forgery or not.

A Local Government Board inquiry has been held at Huddersfield into an application of the corporation for sanction to a loan of £8,771 for the erection of working-class dwellings on land at Wakefield-road, Moth Green. The plans have been prepared by Mr. K. F. Campbell, the borough engineer.

CURRENTE CALAMO.

We do not know whether Mr. Clement Edwards, M.P., is right with reference to his "startling discovery" that the South Wales miners already have "the minimum daily wage" by the agreement of 1910. Very possibly. He was when, some years since, in the series of articles he did for us in the *Weekly Times* on Railway Nationalisation, he reminded us all that long years ago Parliament had anticipatively legalised that, and that all the Government needs to do is to exercise the powers then given to it. If he is right now, apparently all the law has to do is to enforce the 1910 agreement arrived at in South Wales. Some such happy issue will, we trust, avert the blow which threatens to paralyse our own great group of industries in common with the rest next week. One may also hope that all concerned will be quite sure this time what they do agree about! There are some of us who are beginning to distrust the diplomacy of Democracy, and to wonder whether, like that which shrouds itself in such mystery in the Foreign Offices of Europe, it rather welcomes complications and misunderstandings, which make good for the "conciliator's" trade, just as the Insurance Act seems to have created a new and well-paid army of explainers, lecturers, and commissioners!

Liverpool seems regarded as the nursing home of experts in town planning. The City Council decided on Wednesday to lend the city engineer, Mr. J. A. Brodie, to the Government of India for the purpose of assisting in laying out the new capital of India. A request for his services came from the Under-Secretary for India, through the Lord Mayor (the Earl of Derby), who gave instructions for a special council meeting to be held to consider the matter. Mr. Thomas Mawson, lecturer at Liverpool University on Landscape Design, has received a cable from the city of Vancouver, asking him to meet and advise them on a scheme for the development of the park system there, one of the most extensive of its kind in America. Mr. Mawson, who has recently been lecturing at Harvard, Toronto, Chicago, and Cornell Universities, is laying out the grounds for the new establishment of Dalhousie University, Halifax. Many public and private gardens in England have been designed by him, and his book, "Civic Art," is a standard work on town planning. Both invitations are more likely to secure good service than if extended to some of the more or less amateur enthusiasts who seem so ready to advise the world in general!

The latest advocated site for the projected new building for the University of London may be in a convenient district; but the subdivision of the structure into four blocks, intersected by cross-roads, will hardly facilitate architectural effect or convenience of communication. The land suggested lies east and west of British Museum-avenue, looking down it towards Torrington-square, and is intersected as well by Keppel-street. The first two blocks to the right and left, north of Montagu-place, contain each about 31,000 superficial feet, the block north-west of Keppel-street and the avenue 20,000ft., and the north-eastern block about 16,000ft. The area of the last-named block is a very irregular one, and will tax the architect's capability for planning whatever buildings he

is expected to get on to it. We are told that the Duke of Bedford has granted an option on the four sites till March 25, and the *Times* of Monday last appeals strongly for money to seize the "opportunity," insisting that "it is extraordinary how completely suitable the disposition of the land appears to be for the purposes required." We confess we do not see it. Our opinion is, what the University will save on the site—if it is going to save anything—it will spend on a building thus cut up into four isolated blocks, neither of which will lend itself to the best treatment, either of design or plan, economically or adequately.

The luck of some people is marvellous! We knew a man years ago who never paid Income-tax till he became a partner in the concern he had managed for years, although his name appeared prominently in connection therewith, and he was more than once interviewed by the local collector in regard to matters of dispute about the firm's assessment. Individuals may conceivably escape the knowledge of the tax and rate collector, but it is odd that wealthy corporations like the Inns of Courts should. Nevertheless, it has just been discovered that under the Union of Parishes Act, which made the Corporation the sole rate-collecting authority in the City, the Temples have paid no Poor Rate. Formerly the Guardians collected the rate. In the Bill promoted by the Corporation the Temples were included; but, as a result of negotiation, they were omitted from the Act. This escaped the notice of the Guardians, who were under the impression that the Temples were paying Poor Rate to the City authorities. Altogether over £13,000 is involved, the rate amounting to approximately £1,700 per half-year, and there being eight half-years' arrears due. A penny rate in the City amounts to £22,000, so that, according to the *Morning Post*, the citizens have paid over £d. in excess of their just proportion, while the Benchers of the Temples, presumably, have been waiting to be asked, with a patience that must commend itself to the admiration of every Englishman!

Mr. George P. Bankhart's thoughtful lecture last Wednesday at Edinburgh, of which we give an abstract and some illustrations on another page, was a simple, but excellent, condensed analysis of traditions, principles, and qualities essential in good plaster decoration, according to the nature and capabilities of the kind of plaster used in the various kinds of work. Mr. Bankhart believes that he holds the secret of successfully making and working the old white stucco material of the Italians who wrought by hand the famous ceilings of Inigo Jones's and Wren's time, such as Ashburnham House, Belton, Melton Constable, Groombridge, Brickwell, Acklam Hall, Holyrood Palace, Kilmainham, and hosts of others. Certainly this art seems to have died a natural death just previous to the advent of the Bros. Adam's work. But the ceilings have been sources of inspiration to architects during the last eighty years for reproductions by processes which, to say the least, cannot compare with the splendid old stucco ceilings. Mr. Bankhart claims that he is now making the identical material, and that he is executing in the traditional manner the first ceilings done in that manner and material after a lapse of two hundred years. His patient research and long experience abundantly entitle him to a hearing.

A, B, and C all have telephones in their houses in Liverpool. A is leaving Liverpool; B is moving to A's house; C is moving to B's house; D is moving to C's house. B, C, and D all want telephones, and suggest to the telephone authorities that the instruments should all remain as they are. But this does not suit the authorities. A's must be taken away; B's must be moved to A's house, for which B must pay £2 5s.; C's must be moved to B's house, at a similar cost to C; and so on. B has offered to pay the £2 5s. if the telephones can be left as they are; but even this proposal is refused. Surely, remarks the *Liverpool Post*, some reform is needed in telephone management. And elsewhere, we think! Perhaps the work in that department is slack, and it is necessary to make jobs? Evidently it is not in other departments, judging by the time it takes to send receipts for money paid. We paid the usual yearly registration fees for our papers on Sept. 13, 1911, and the official receipts reached us on Tuesday last! This, by the way, after an official inquiry whether we wished one of them registered as being published at our present offices, where we have been eighteen months.

Several letters, for which we have no space, have reached us, commenting on our expressed belief in this column last week that house-building is in arrear in many towns, and that investment in house property is reviving. One writer contends that builders are asleep, another that the local authorities are idle, and another that local authorities have killed private enterprise by saddling ratepayers with expensive dwellings schemes. We fancy all three allegations are exaggerations. Anyhow, we are glad to note that on Tuesday, at a meeting of the Rugby Urban Council, a report presented from the plans and estates (joint) committee on the question of the need of cheap dwelling-houses in the town, the committee expressed themselves as quite satisfied that there did exist a serious demand for houses for the working classes in Rugby which at the present time was not being met by private effort. The committee further reported that they had been successful in using their influence in securing the consent of the representative of one of the owners of suitable sites—viz., the Rector of Rugby, to agree to recommend to his authorities the sale of part of the Rugby glebe at a price at which a private investor had expressed his willingness to purchase with a view to building. The site referred to is within convenient reach of the B.T.H. Works—on the north side of Craven-road—and is now used as garden ground. It contains about 28,100 square yards, and is considered sufficient for the erection of approximately 186 houses, to be let at from 5s. 6d. to 7s. 6d. per week. Rather than embark the council on extensive building responsibilities, the committee (whose report was adopted) recommended that they should continue their negotiations towards carrying out this arrangement. That, at any rate, is very proper action for a local authority to pursue, and we hope it will have a good response.

While we think there is no doubt about the better tendency of things generally in connection with the building trades here at home, it is, as yet, nothing like that which is finding such vigorous expansion elsewhere. In Japan and in Australia especially the activity is really remarkable. Several years in suc-

sion we have mentioned with gratification the large increases in the numbers of our Japanese subscribers, and this year the additions have been really surprisingly numerous. In Australia—in New South Wales more especially—trade seems to be booming, and the considerable demand, more particularly in Sydney, for the BUILDING NEWS has induced us to open up relations with a well-known firm of printers and publishers there who will in future represent us and receive subscriptions. It is pleasant to us to note this, and to know that many of our advertisers are obtaining a publicity which cannot but be beneficial to them, and helpful to English trade generally.

ARCHITECTS FROM GEORGE IV. TO GEORGE V.

By MAURICE B. ADAMS, F.R.I.B.A.

(Concluded from page 230.)

Everyone knows what an excellent draughtsman Welby Pugin was; but those who are not familiar with the drawing in Perry's life of this great architect may not remember that at so early an age as thirteen Pugin made a first-rate sketch of Christ Church Priory, realising the architecture of that remarkable building fully expressed. A bird's-eye of his church and convent at Ramsgate is included in the Phene Spiers's collection of historic drawings hung in the Victoria and Albert Museum.

While Pugin was busy in 1837 with the drawings of the new palace at Westminster, "in the composition of the river front," the centre wings, and tower, he was engaged in erecting St. Mary's College, Oscott, and Seagrass Hall. Simultaneous entries in his diary show this beyond question. His first church was at Oscott, Cheshire.

Sir George Gilbert Scott, at the outset of his career, erected many workhouses and suchlike buildings, and other Gothic celebrities, like S. W. Dawkes, who had erected Clney Hatch, and Benjamin Ferrey, who built Dorset County Hospital in 1839. Scott was arrested to Edmonstone in 1827, and in 1834 helped Kemphorne, an expert in workhouse projects, after serving a time with the builders, Peto and Grissell. Scott's connection with Moffatt, began in 1835, after which the firm went in seriously for Poor-law enterprises, and carried competitions before them with businesslike foresight in such a way as to obscure some other considerations. Influenced by Storer's "Cathedrals," which came out in 1814-19, Scott turned his attention subsequently to Medieval work, and the Cambridge Camden Society woke up matters in favour of Ecclesiology, which was inspired largely by Pugin. Curious to relate, Gilbert Scott obtained his first church, St. Mary's, Stamford, through his connection with the Poor Law Commission.

Scott characteristically went into win, and so adopted a popular style, as at St. Mary's, Wakefield, and he won much favour by his capable church of St. Giles, at Camberwell (1841); also by securing by competition Hamburg Cathedral in 1844, on which design he had the help of Coe and Street. Scott obtained the superintendence of Westminster Abbey when Blomfield retired in 1839. The chapter-house was restored by Scott, who built his new north porch.

The competition for the Foreign and Colonial Offices in Whitehall was also part in by 218 other architects, and I have already mentioned how Scott was chosen, and how he was served; but I did not say that Sir Digby Wyatt's work was confined to the interior of the India Office the contrivance of some rooms badly fitting the exterior; but much of his ornament is extremely clever. It is impossible in a paper of this kind to do justice to such a personality as Sir Gilbert Scott. His work was enormous, and his capabilities such as

would have made him distinguished in any age.

The professional societies of architects must not be overlooked. The first dates from 1806, with John Woods, architect, of George Yard, Lombard-street, as president. James Savage and James Gurney were the vice-presidents, Mr. Bushby being secretary. Every member was expected annually to present an essay on a subject connected with civil architecture, or forfeit half a guinea. Pines and papers belonged to this London Architectural Society. The subscription was £2 2s. a year.

The Royal Institute of British Architects was constituted in 1835, and incorporated in 1837. Earl de Grey was the first President, Professor Donaldson and John Goldicutt being hon. secretaries. Its genesis may thus be briefly stated. On January 8, 1834, a meeting took place in Freemasons' Tavern of architects and surveyors to found an architectural institution. Mr. Elmes took the chair at a subsequent meeting on the 13th of the same month, when it was agreed to term the institution "The Society of British Architects." An amendment terming the body "The Wrennian Society" was negatived, the proposal being objected to on the ground of the extremely diminutive size of the gathering. In 1835 "The Architectural Society," instituted in 1831, only numbered fifty-one members at 35, Lincoln's Inn. Mr. Bernard Clarke was the President. In 1838-9 Sir William Tite was President, and Richard Halliwell hon. secretary. J. A. Bell in 1834 published a letter addressed to Lord Farnborough, the eminent authority on Parliamentary procedure, urging the need of a chartered Surveyors. The Society of Architects and Surveyors, the Society of British Architects formed a coalition in 1842.

William Butterfield is first found recorded as a student member of the Society of Architects in 1831 at the age of seventeen; but he joined no professional body after, and only agreed to accept the Royal Gold Medal of the Institute in 1881 by deputy. His influence was considerable and his work masterly. The College of St. Augustine at Canterbury, built in 1815 at the cost of Mr. Perceval Hope, was his first important building. All Saints Church and Clergy House, Margaret-street, five years later, revealed the possibilities of brick and created much controversy. St. Matthias, Stoke Newington; Balliol College Chapel, Oxford; which some would have wanted to pull down last year, and St. Alban's Church and Clergy House, Holborn, 1858, displayed his genius. King's College, Stamford, 1862, was his last. Not one of Butterfield's contemporaries evinced more originality or less regard for convention. He invented the "streaky-bacon style" of partly-coloured brickwork.

John Loughborough Pearson, R.A., also of a retiring temperament, was equally original, and produced buildings unsurpassed by any man of his time. The spire of his first London church, Holy Trinity, Bechington Gardens, 1852, is a most beautiful structure seen from any point of view, and St. Peter's, Vauxhall, the first modern church vaulted throughout in brick and stone, 1861, set an example for many others to follow. St. Augustine's, Kilburn; St. John the Evangelist, Red Lion-square; St. Michael's, Croydon; St. Agnes, Liverpool; St. Matthew's, Northampton; and St. Stephen's,ournemouth, as well as Hove Park Church, and the mention Truro Cathedral, suffice to distinguish Pearson as a master of the first degree, combining a study of Continental work with a recognition of English tradition, and as a church-builder fully realising the requirements of a modern church.

J. P. St. Aubyn was among the first English architects of the Gothic revival to emphasise the importance of local modes and textures in church work, in Cornwall, 1867, studied in this way. It is a matter of regret that he did not retain more of the historic old screen work and wood fittings in some of the churches he repaired.

The series of churches built by James Brooks rise to the level of high distinction, and I only regret that space precludes a full

description of his architectural achievements, his starting patrons being Richard Foster and Robert Brett for the churches which he built in East London—St. Michael's, Shore-ditch; St. Chad's, Haggerston; and St. Columba's, Kingsland—during the sixties. The Hospital of St. Mary at the Cross, Shore-ditch, and St. Saviour's, Hoxton; St. Andrew's, Plaistow; and St. Mary's, Horsey, in which church Brooks tried his hand at the last phase of Gothic—the Perpendicular.

G. F. Bodley, R.A., stamped everything which he did with the utmost refinement and distinction, as well as with originality, which would have graced any period of architecture. St. Michael's, Brighton; All Saint's, Cambridge; the Church of the Holy Angels, Hoar Cross; St. Augustine's, Pendlebury; St. Mary's, Clumber; St. John's, Cowley, Oxford; St. Edward's, Holbeck; and Holy Trinity, Kensington, give an abstract of several remarkable examples of beauty and reserved power. Dover House, Chelsea; the School Board Offices on the Embankment, Christ Church Buildings and St. Swithin's Quadrangle, Magdalen College, Oxford; additions to King's and Queen's Colleges, Cambridge, and Washington Cathedral must suffice. His character was as charming as his work, and no one had a wider experience in perfecting design in the applied arts. Part of the work mentioned was done, of course, in conjunction with Thomas Garner. His veredos at King's Lynn is only one of similar erections of his skill. When he was elected R.A. he told me his works sent to the R.A. for exhibition were refused by the Council because they said his share of the designs must pass without question, and Mr. Garner's share of them must be judged. This absurd contention much amused Bodley.

William Burges joined H. Clutton in a competition for Little Cathedral in 1856, which they won. Street took the second prize, and he said Burges was so familiar with French prejudice that he had taken the precaution to use French paper, and as Street thought, thereby obtained undue advantage. The drawings, anyhow, were so quaintly executed that Viollet Le Duc at first belied, when he visited the exhibition of the competitive designs, that Burges's drawings were some old ones of the thirteenth century, till he discovered "Whatman's" water-mark in the paper. Either Street or Viollet Le Duc was wrong. The designs of William Burges were always thorough, including the most minute detail. Cork Cathedral, his churches at Skelton and Studley Royal, near Ripon; Cardiff Castle, St. Faith's, Stoke Newington, and St. Peter's, Harrow, are among the most important. His design for the Law Courts was architecturally by far the best. The scheme which he made for decorating St. Paul's Cathedral by a veneer of marble was shown at the Royal Academy in 1873.

E. W. Godwin, F.S.A., like his personal friend, William Burges, imported French Gothic mannerisms, and exercised a great influence on his fellows, though considering his genius, Godwin's career individually was largely a failure due to his own personal shortcomings. Congleton and Northampton Town Halls, Dromore Castle, and Glenhish Towers, some work at Canon's Ashby for the Marquis of Northampton are his designs. He won the first competition for the Town Hall at Leicester, and built Whistler's house at Chelsea, and the Bedford Hotel, Bedford. Godwin created a style of his own, and took up Japanese art with ability. As a writer of literary accomplishment, and as an authority on costume and dramatic staging, he was unsurpassed.

George Edmund Street, R.A., the builder of the Law Courts, was in every sense a great architect. His books on Spain and Italy's architecture, and his work in marble display defatigable industry, and a discriminating incisive style. Bristol and Christ Church Cathedrals were partly rebuilt by him, and he told me that when the Dublin work was in hand a detail for the entrance arch was asked for. He drew it out on the spot, full size. As the structure proceeded a fragment of the old arch was subsequently found which

proved to be identical with the profile he had supplied, so scholarly was Street's knowledge. His design for Edinburgh Cathedral was an excellent performance, a remark which applies to his fine churches at Kennington, Eadington, Eastbourne, Clifton, Barnborough, and Oxford; also St. James the Less, Westminster, and the convent at East Grinstead. Like Barry and Scott, Street was buried in Westminster Abbey. Bodley designed the brass over his grave.

I must be content to merely name some of the most able church architects of their day. John Pritchard, Wm. White, R. J. Johnson, J. Hutton, J. S. Fowler, E. H. Hilditch, George Goldie, E. W. Paley, Archibald Dunn, and S. S. Teulon. John P. Seddon, at one time Hon. Sec. of the Institute, did good work during the sixties, and John Douglas, neglected by the Royal Academy.

George Gilbert Scott, Junr., as he was called, erected St. Agnes, Newington, in 1877, and All Hallows, Southwark, some years later, realising the poetry and efficiency of ecclesiastical work of a plainer kind in brick for the purposes of town churches and advanced Anglican worship. J. D. Sedding's two London churches, Holy Trinity, Sloane-street, and that of the Holy Redeemer, Clerkenwell, are exceedingly clever and well contrived, though so different, showing a duality of mind and versatile taste, therefore somewhat disappointing. Sedding usually made his sketches in a green-covered ledger-like book, and one day, when out with him and a few companions, someone said as we walked along a country road, "What a curious book Sedding was using." "Not at all," ejaculated Sir Thomas Drew, "for he invariably designs and draws on the principle of 'Double Entry.'"

J. F. Bentley's smaller churches were very charming, and the Cathedral at Westminster will find his name down to posterity, though it is doubtful if it will ever look so grand inside as now in the undecorated plain carcase state with the brick joints to give it scale. His seminary of St. Thomas at Hammersmith, though so plain, is a greater success than his florid college near Windsor. St. Martin's Church, in the Lewes-road, Brighton, erected about 1876 by Mr. Somers Clarke, F.S.A., possesses many masterly qualities. It is hopeless to try to even mention more than these, for I am taxing your patience, but Mr. Wm. Niven's church at Teddington, and A. H. Skipworth's church of St. Etheldreda, Fulham, some by Hodson Fowler, of Durham, and others by Mr. Temple Moore, Mr. Cecil Hare, Sir Chas. Nicholson, and Mr. W. Tapper, are works pointing to posterity. The Hall of St. Leonard, and Mr. J. Oldrid Scott's country churches, also his completion of the Duke of Norfolk's great church at Norwich must be named. Of course, the noble cathedral at Liverpool, now being built by his nephew, Mr. G. Gilbert Scott, is more important, and the Lady Chapel has already been completed.

Briefly let us turn to Civic Buildings, in which the names of James Hall of Leeds and Hull, by Cuthbert Broderick, come to the mind for their classic merit, which also marks John Burnett's works in Glasgow, with many others of no small ability in Scotland, as at Aberdeen and Edinburgh. Greek Thomson, too, had his admirers, though his work leaves me cold. Banks and Barry's buildings, forming the quadrangle in front of the Royal Academy, and the Palladian buildings at its rear for London University, by Sir James Pennethorne, erected in 1848. The City Library Club, by Mr. G. E. Grayson, a few years later. David Bryce erected the Bank of Scotland, and J. Dick Peddie's work we recall with praise; also E. M. Barry will not be overlooked, though if skeletons in cupboards must come out, it appears from all accounts there is a ghost who designs the well-known schools, the "top of Endell-street," for which E. M. B. got the credit and no small praise, for it is an uncommonly clever work. Alfred Waterhouse, R.A., of stupendous practice, was no sooner out of his articles than he won the Assize Courts at Manchester. Edmund Sharpe told me that Waterhouse had acknowledged to him how useful he had found the books of classical mouldings published by Sharpe, for, said he,

"I was in the thick of my business before I was really ready." The planning of Manchester Town Hall demonstrated the unequalled skill of Waterhouse as a planner, and his taste and his work were gradually revealed. His excellent buildings all over the Kingdom speak of him as an architect, and the Natural History Museum, if hard in material texture and not very happy in its colour, is not put out of countenance by its newer neighbours.

George Corson, of Leeds, born the same year as Waterhouse, worked on the same modern lines with ability. Here we must not omit a line on "Victorian Harris," whose efforts, which won him this name, were by no means so trivial as some said they were. Bassett Keeling made a stir when he startled folk with his Strand Music Hall front, for that was florid and vulgar enough; whereas Thomas Harris, who built Salfaire, and another mansion at Stokesay, was an accomplished architect. The best Victorian buildings of the civic sort were called "Queen Anne," and the schools designed by John J. Stevenson in conjunction with Mr. E. R. Robson, were admirably refined and clever. Mr. Basil Champneys, Mr. Philip Webb, Eden Nesfield, Richard Coad, George Devey, Mr. Ernest George, and Mr. Norman Shaw all did work in this way which has not been surpassed for originality and charm. The new Scotland Yard, by Mr. Norman Shaw, and the Zealand Chambers in the City, are second to none in their way, and the Rylands Library at Manchester, by Mr. Basil Champneys, deserves warm praise, though I may be exceeding the rule I laid down at the outset in saying so. The Imperial Institute and Lloyd's new buildings in the City, Wakefield Town Hall, and other conspicuous buildings are associated with Mr. T. E. Gordon. Verity and his connection with the Albert Hall. I must refer you to my list for some other civic buildings, such as the University and Collegiate work at Oxford and Cambridge, Newcastle, Hampstead, Lancing, Rodean, and Rugby, Eton, Horsham, Birmingham, Dartmouth, Bangor, and Aberdeen. Town Halls at Bradford, Plymouth, Belfast, Woolwich, Sheffield, Lancaster, Colchester, Cardiff, and Stockport, and Municipal Buildings at Chelsea, Oxford, Glasgow, West Ham, Walsall, and Crewe. Public Libraries and Polytechnics all over England, Holborn Viaduct, and the Thames Embankment. The Regent-street improvement, the Mall processional road, Victoria and Albert Museum, the War Office, Admiralty Buildings, Charing Cross, Wesleyan Memorial Hall, and many other buildings are fresh in our minds. The Office of the Woods and Forests in Whitehall scales better with Inigo Jones' Banqueting Hall than any of its neighbours.

English and Scottish domestic work has exceeded in merit all foreign competition, and it bids fair to reach a more general application as men learn to omit senseless detail and elaboration, depending instead more on decided proportions, but the Gothic spirit must be retained to keep it virile and adapted to modern requirements and domestic comfort. "It is for homely features to keep home."—(Milton).

No retrospect of the past century can reasonably be complete without some reference to the vexed question of restoration, which, with all its disastrous results, was carried out in the early Victorian period with far too big a letter R; it destroyed much that was historically valuable and artistically beautiful by well-meaning enthusiasts who scraped and spoiled many a noble building at enormous expense without recognising the value of architecture and her handmaidens in craftsmanship. We are all agreed about that, and now no capable architect would do anything, let us hope, of the sort we deplore.

The South Manchester Board of Guardians at their meeting on Friday, Mr. G. Macfarlane in the chair, after discussion, adopted the recent proposal for the establishment of a joint children's hospital for the Manchester and South Manchester Poor Law Unions. The building will contain 500 beds, and is estimated to cost about £150 a bed, or a total outlay of £75,000.

PROFESSIONAL AND TRADE SOCIETIES.

BRISTOL SOCIETY OF ARCHITECTS.—Mr. Arthur S. Jennings, editor of *The Decorator*, gave a lecture to the members of this society on Monday on "House Painting and Painting," the Special Reference to Non-Poisonous Pigments." Mr. Foster Wood presided. Mr. Jennings said house-painting had hitherto been looked upon as being of quite a simple matter, but it was now recognised that it was a very important, and indeed complex, matter, and required not only specialist knowledge of the materials and application to the materials, but also a knowledge of chemistry and other matters enter into the question. The builder of the Tay Bridge was once asked how long his work would last. His reply was, "As long as it is painted." As a matter of fact the bridge was being painted from year's end to year's end, and 500 tons of paint were used upon it annually. The preservative value of paint could not be over-estimated. If a building was painted with good paint it would last; if not so protected, the material would more or less rapidly decay. Hence paint and painting had been likened to an insurance tax and not an inconsiderable one. Some short-sighted owners of property neglected to paint as frequently as was necessary, and the result was that a permanent condition of decay was started which could not be arrested. The speaker referred to the peeling of paints, the influence of driers, and the tinting of colours. With regard to the use of white lead, he pointed out that although its poisonous character was only now becoming fully recognised in this country, in various places abroad there had been an agitation going on against it for years, and its use was now prohibited in France. The painter was subject to the effects of lead-poisoning, through contact with the skin, through inhaling fumes in burning off old paint, and by the dust which arose in rubbing off old paint prior to putting on new. He urged that white lead should be replaced by other pigments, emphasising in particular the value of zinc oxide in this connection. This product was not a modern affair; it was used in quite ancient times, and was in great demand on the Continent. He commented upon the lack of knowledge of the right way to use zinc oxide, explained the process, and urged that, from an economical point of view, though the initial cost was more, there were compensating advantages in durability and spreading capacity. Another recommendation for its use was the absence of odour as compared with paint in which white-lead was used. Allusion was also made to another non-poisonous pigment—lithopone. An interesting discussion followed, in the course of which Mr. Jones, who said he represented an old local firm who manufactured white-lead, stated that if he had known that the speaker was going so exhaustively into the question, he would have come prepared to show that white-lead, their old friend, had not suddenly turned round and become a new enemy.

GLASGOW INSTITUTE OF ARCHITECTS AND ARCHITECTURAL COMPETITIONS.—The quarterly meeting of the Glasgow Institute of Architects was held on Wednesday week, Mr. John B. Wilson, F.R.I.B.A., president, in the chair. The council had had under consideration the proposal that the extension of the municipal buildings should be carried out by the city engineers' department, and a letter had been forwarded to the corporation protesting against that proposal. The council noted with satisfaction that the corporation had remitted the matter back to the committee for reconsideration. A full report was made regarding the steps taken by the council for amendment of the conditions of the Finnart School competition. The meeting approved of the action of the council in prohibiting members of the institute from taking part in the competition, in view of the unsatisfactory result of the negotiations with the board. It was pointed out that the R.I.B.A.

and the Edinburgh Architectural Association had also placed an embargo on the competition. There was submitted to the meeting a resolution passed by the council, in terms of the articles recently adopted by the institute, for the better regulation of competition by debarring its members from engaging in competitions the conditions of which are considered unsatisfactory. The resolution, which was approved by the meeting, defined what is to be regarded as professional misconduct on the part of any member.

THE LONDON ASSOCIATION OF MASTER DECORATORS.—A meeting of the general committee was held at 92, Queen Victoria-street, on February 12. Mr. C. E. Wilkinson in the chair. Present: Mr. John Anderson, Mr. G. Colley, Mr. E. Dakin, Mr. John Milton, Mr. T. S. Rowden, and Mr. Alexander Davidson (secretary). The committee proceeded to the consideration of the publication of the revised report of the Educational Committee, in conjunction with letters from the London Council, appointing a day for receiving a deputation. The committee then proceeded to consider the desirability of urging local bodies, as a means of relieving distress and meeting trade conditions, to arrange their painting and decorating contracts at times when business was slack and, in consequence, much unemployment existed. The committee next considered the subject of adopting a discharge certificate in connection with the trade. The idea was a certificate, which the workman could carry, containing particulars of his various employments, the length of time such employment was held, etc. It was agreed that the general meeting should be held on March 25 and that the following items should appear on the agenda: (1) Action to be taken with reference to the Insurance Bill; (2) report of the Educational Committee and the deputation to the London County Council; (3) to discuss the issue of certificates of employment and discharge.

MANCHESTER SOCIETY OF ARCHITECTS.—On Wednesday, February 14, Mr. A. N. Paterson read a paper entitled "Scottish Architecture, Ecclesiastical and Domestic, 15th to 17th Centuries." In tracing the history of the early development of Gothic art in Scotland, he showed how till the 15th century Scotland followed in the wake of the general traditions of building in England; that then, when England had passed to the Perpendicular period of fluted piers, fan vaulting, and vertical windows, Scotland, severed from English influence by the war, developed an architectural character of her own. This she maintained for the two following centuries; but it was to France, rather than England, that she turned for friendship and inspiration. The time for the building of churches had now passed away, and Mr. Paterson showed, with some excellent slides, the development of the country house from the peel tower and castle. A vote of thanks was proposed by Professor Camper, and seconded by Mr. Hewitt, and heartily carried.

QUANTITY SURVEYORS' ASSOCIATION.—An extraordinary general meeting of the members of this association was held on Monday evening last at Caxton House, Westminster, S.W., at which the following by-law was adopted:—"No member or associate of the association shall prepare bills of quantities for less than the schedule of charges recommended by the association for adoption by public authorities, excepting only in cases where a public authority may have already issued a special scale of charges for their particular work. No member or associate shall, under any circumstances, work for the general authority for a lower remuneration than this special scale." "Any member or associate of the association who shall act in contravention of this by-law shall be considered guilty of conduct prejudicially affecting the reputation of the association, and shall be dealt with by the council as provided in clause 29 of the articles of association." "It shall be the duty of the members or asso-

ciates of the association to acquaint the council, through the secretary, of the existence of any scale of charges issued by any public body which stipulates lower rates of charges than those recommended by the association, in order that the council may communicate with the public body in question, with the view of endeavouring to prevail upon such public body to make their scale conform with that of the association."

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY.—An interesting lecture was delivered on the 14th inst. before the above society on "The Work and Life of Michele San Micheli," by Mr. J. Stuart Byrne, Lic.R.I.B.A., the president, Mr. A. B. Burleigh, Lic.R.I.B.A., being in the chair. A study of the life of San Micheli is interesting, not only on account of the distinctive qualities of his work, but also on account of his position in perhaps the most important period of the Italian Renaissance. Born in 1481, the son of an architect, brought up in an architectural atmosphere, sent to Rome at the age of sixteen to study for his profession, it is not surprising that he developed into an architect *par excellence*, in contradistinction to some of the other masters who bestowed part of their allegiance on the other arts of sculpture and painting. Not contenting that his work appears to have certain architectural qualities lacking to some extent in the works of some of his contemporaries. The most famous architect practising during San Micheli's youth was Bramante, who was engaged during the early part of it in Lombardy, not so very far from Verona, and during the later years in Rome. In fact, the youth and the master went to Rome about the same time—namely, about the year 1500—Bramante to engage in the work of the Cancelleria and Giraud palaces, and the youth, we can hardly doubt, to seek inspiration from new and old work—the practice then, as it is to-day. We may be pardoned, therefore, for supposing that San Micheli came under Bramante's influence, and there is something to support this in the similarity of the façades of the churches of Santa Maria in Organa at Verona, and San Sisto at Milan, not to mention other points of similarity in various window and other details. San Micheli's greatest claim to fame arises out of his military architecture. His first direct connection with such work appears to have occurred when he was about thirty years of age, and within a few years he had effected a revolution in the design of bastions. The importance of which entitled him to rank with Vauban among the greatest of military engineers of all time. This work was the invention of a new type of bastion, whose front was angular, the apex towards the attack, and the subtending sides, when produced, cutting the line of the curtain outside the bastion, and at points more or less remote from it, as circumstances directed. The new arrangement permitted the faces of the bastion to be completely swept by fire from the curtain, and also to some extent from the adjoining bastions. This was impossible with the square and circular towers in use previously, and combined with the other new features and designs presented, was of enormous advantage to the defence. It should be pointed out that Viollet le-Duc has disputed San Micheli's claim to this honour in favour of some unknown French engineer; but his evidence is by no means conclusive. San Micheli seems to have been engaged almost exclusively in fortification work for a number of years, and there can be little doubt that this experience, which involved a careful consideration of questions of utility and sound construction, greatly influenced him when called upon to design works of a more decorative and architectural character. Two of his finest buildings are the Porta Nuova and Porto del Palio at Verona, both designed with remarkable simplicity and directness. He also designed, amongst other work four fine palaces in Verona, of which the Pompeo and Bevilacqua

are the most notable, and the Grimani Palace at Venice, the perfection of whose lower story is somewhat marred by the faulty proportion of the upper stages, for which it is possible that San Micheli was not responsible. He made several designs for churches; but, unfortunately, few of them were carried into execution, and even these were not completed in the author's lifetime. As a designer he was gifted with considerable facility, which he exercised with the greatest refinement and restraint. His work, while sound both constructionally and artistically, is never dull, and does not lack originality. If we may believe Vasari, the character of the man was in keeping with his work, and would justify one in regarding the study of his life and art as well worthy the attention of the thoughtful members of his profession. At the conclusion of the lecture a hearty vote of thanks was proposed by Mr. G. W. Milburn, seconded by Mr. A. Cowman, Lic.R.I.B.A. The following officers for the present session have been elected:—President, Mr. A. B. Burleigh, Lic.R.I.B.A.; vice-presidents, Mr. T. W. Whipp, A.R.I.B.A., and Mr. J. H. Rutherford, Lic.R.I.B.A.; hon. treasurer, Mr. J. D. White, Lic.R.I.B.A.; hon. librarian, Mr. E. R. Tate, Lic.R.I.B.A.; hon. secretary, Mr. Harold E. Henderson, Lic.R.I.B.A.; assistant hon. secretary, Mr. J. M. Andrew; members of council, Messrs. A. E. Munby, A.R.I.B.A., S. R. Kirby, Lic.R.I.B.A., F. Dyer, K. Ward, Lic.R.I.B.A., and J. M. Andrew. The prizes for the best set of measured drawings have been awarded by the assessor, Mr. A. E. Munby, M.A., A.R.I.B.A., to—first, Mr. C. Leconly, and second, equally divided between Mr. D. Morrell and Mr. C. W. C. Needham.

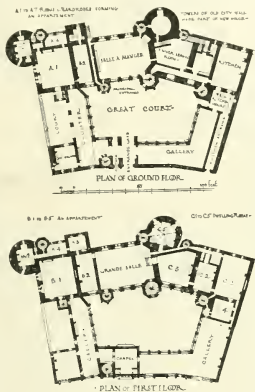
Our Illustrations.

HOTEL DE JACQUES CŒUR, BOURGES.

Commenced in 1433 by Charles VII.'s Finance Minister, Jacques Cœur, the famous silversmith, this well-known French mansion forms one of the most remarkable specimens of Domestic architecture of its time still standing almost intact in France. Bourges possesses other houses, such as the Hotel Cujas and those in the Rue des Toiles, including a beautiful stone-built house of the 15th century. There is also the convent of the *Annunciades*, where Louis XI.'s innocent and discarded wife died after six years' repudiation. The Hotel Alement, an example of Early Renaissance, has an interesting courtyard; but Jacques Cœur's house is the glory of Bourges, having been built by its most magnificent citizen, whose fortune had been the prop of his king and country. Charged with murder by Jeanne de Vendôme, wife of one of his principal creditors, his victim was said to have been Agnes Sorel, mistress of Charles VII., and thus, inspired by jealousy, the ungrateful monarch was induced to permit the wholesale robbery of Jacques's property and the arrest of his person, and worse still, condoned his condemnation in the face of a triumphant refutation of the crime for which the King and his new favourites had Jacques ruined, in spite of his proved innocence. Jacques's life was, however, spared, though his wealth was confiscated when he was banished. He died in the Isle of Chios just after public opinion had secured his pardon being proclaimed. Such was the builder and the story connected with this famous building, of which we give a rare display contributed by Mr. A. C. Ward (of Messrs. Fare and Canon), and the plans here drawn will show the shape, quaintness, and extent of this "hôtel." Its façade is surpassingly rich, with Flamboyant friezes, its tourelles, tall roofs, and cloister-like galleries, the right-hand one being occupied usually by the poor who daily came for charity and food at the hands of the master. The niche under an canopy over the entrance

at one time was occupied by an equestrian statue of Charles VII. The figures looking out from the side niches are supposed to represent "in and 'er," as the man-in-the-street in England would say, meaning Jacques and his wife, Hearts and pilgrims' cockle-shells, with the device of the cross of St. Fargeau (of whom the site was bought), form the subjects of many carvings below the windows and elsewhere. On the left of the portal, inside, to the right, is the exquisite little portico of the staircase leading to the chapel (seen on the first-floor plan), which is decorated with ecclesiastical in relief preparing for various religious ceremonies. This staircase was available for the use of the public to the chapel, with its large traceried window over the portal. The accompanying view illustrates the "courtyard, with the open

benefactor, and never ceased till they had brought about his ruin. They are forgotten and are unrecorded; but Jacques Cour's name is familiar wherever architecture is appreciated and studied.—The "Cathedral of St. Etienne at Bourges is too well known to be more than mentioned as one of the most beautiful in the whole of France. It was commenced early in the 13th century, and was consecrated in 1324. Its incomparable west front, with five deeply-recessed portals, is most elaborately sculptured,



Though one of the shortest cathedrals in France, the interior appears one of the longest, owing to the fact that the central aisle is unbroken, and likewise there are no transepts to interfere with the continuity of line which in this church particularly adds to its most majestic appearance. Two aisles run on each side, and continue round the apsidal choir. Above the enormously lofty pier-arches of the nave is a well-developed triforium and a large clerestory. The lower apsidal aisle has radiating chapels, crowned with spires, most ingeniously supported by piers, brackets, shafts, and masses of masonry. In Nesfield's "Specimens of Medieval Architecture," the "ancient Hotel de Ville" at Bourges is illustrated by a sketch of the entrance-tower, and a capital study is also given of the beautiful fireplace in the hall, with a doorway adjacent to it, excellently chosen, and particularly well drawn. In Mr. Norman Shaw's "Architectural Sketches on the Continent," the front elevation and a view of the courtyard will be found of Jacques Cour's House.

THE NEW YORK PUBLIC LIBRARY.

The New York Public Library is built on the site of the old reservoir between Fortieth and Forty-second streets and Fifth and Sixth avenues. The City of New York gave the site and erected the building, which cost about six million dollars. The maintenance and books are provided for by the library trustees. The library trustees held an open competition. From this competition the authors of the six best designs were chosen, and to these six architects six others were added on account of their reputation. The final competition was judged by a jury made up of three New York architects, the three trustees of the library, and the director of the library. The design of Messrs. Carrère and Hastings, of 28, East Forty-first street, New York, was selected, and the City employed them as architects for the building. For the convenience of all concerned, the

building work was divided into contracts as follows:—Removal of old reservoir structure from the library site, and the construction of foundations for the building; main building contract for the chief superstructure, complete as to the exterior, but without interior finishings, and not including the approach work. The material selected for the exterior was white marble—that is, marble of white mass with a slight amount of clouding or marking—and the final selection was of marble from Dorset, Vermont. The walls throughout are of solid masonry, no steel columns being used. Floor and roof construction are of steel beams, with filling between of hollow terracotta arches, all steel being enclosed in heavy fireproofing. The organisation for supervision of the work included an architect's superintendent on the site, assisted by two inspectors, appointed and paid by the City; the architect's superintendent of stonework, who was on duty alternately at the quarry and the cutting-sheds, and the general supervision given by the architects, whose office is near the work. The City retained a consulting engineer for structural work, the engineer being nominated by the architects, but employed by the City, and he was remunerated by a yearly salary. The design of the plumbing and drainage plant, the complete electrical and power plant, the heating and ventilating plant, was by the consulting engineers retained and paid by the City, under the direction of the architects. With regard to the style or character of architecture employed, the endeavour of the architects was to follow Classic principles and to keep in the spirit of the 18th century. As a study of construction, the architects have endeavoured entirely to eliminate all steel or iron, excepting where these must be used to replace wood. They believe that, especially in the United States of America, steel has been used in the most illegitimate way, and suggest that its use has led to trickery and the sacrifice of structural fitness. They also suggest that steel is employed to help architects out of difficulties which they cannot solve. Each horizontal course of the several elevations is carried right through the interior, and into the two courtyards, so that the building may be said to have gone up one course at a time.

A DETACHED WATER-TOWER.

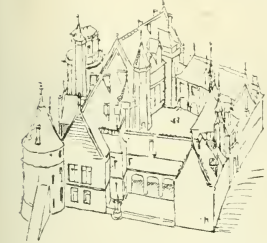
(For the assessor's award in this BUILDING NEWS Designing Club competition, see page 265.)

A tower and spire are about to be added to St. Mary's Catholic church at Baghy, County Kerry. Mr. J. V. Brennan, of Ball Chambers, Belfast, is the architect, and Mr. Hugh Thompson, of Cookstown, County Tyrone, the contractor.

Newquay has lost one of its oldest inhabitants in Mr. John Ennor, sen., builder, who had resided at 8, Springfield, and who died at his residence, Bay View Villa. Deceased was one of the pioneers of building enterprise in Newquay, and had erected a large number of artisans' dwellings and other buildings.

The Hampshire County Council, having decided to take over the control of main roads in the county, has appointed the following divisional road surveyors:—Mr. J. S. Hall, King's Norton, Birmingham; Mr. J. A. Manning, Redruth, Cornwall; Mr. G. H. C. Mothershead, Castle Bromwich, Birmingham; and Mr. W. J. Potter, Old Fariswood, Southampton. The salaries are £220, rising by annual increments of £10, to a maximum of £260. £40 will be allowed for travelling, and all other expenses, except postage and stationery.

A special meeting has been held of Wednesbury Town Council, when the general purposes committee submitted recommendations for the improvement of the municipal offices and baths at an estimated cost of £5,000, and that Messrs. Scott and Clarke, of Wednesbury, should be appointed architects. The Council expressed the view that it was intended to take into the main block of buildings the present education offices. This necessitates the provision of new quarters for the latter department, and it was proposed that this should be done by utilizing a portion of the old fire library, which had been thrown on their hands by the provision of a new library. The recommendations were adopted.



cloisters on three of its sides. Three tourelles facing the entrance distinguish the fourth side, where the building-in-chief stands. Over the main doorway are carved the palm, the olive, and the orange-tree, emblematic of the traffic with the East by Jacques Cour. Reliefs on each stage recall the different phases of industry, and both male and female occupations occur in which the household were generally engaged—"sweeping," "spinning," and "threshing." Vivid kitchen scenes over one door are appropriate to its use. Curious oak saddle vaulting ceils the Salle des Gades and the Passage de Service. In the former there are two fireplaces. On one chimney-piece Jacques and his wife are shown playing chess and regaling themselves with pears and oranges. The other represents a fortress and its defenders, with a tiny figure of a buffoon in the angle of the chimney-piece to the antechamber. The salle à manger is about the same size as the hall at Haddon, Derbyshire—some 40ft. by 30ft. The chapel has been over-restored; but frescoes of angels enrich the ceiling. Jacques, with an axe to devotional exercises, had also some notion of comfort, as he provided pews for himself and wife, each with its own little window and fireplace. The arrangement of the plan exhibits the charm of the Gothic mode of its contrivance, based upon the romance of diversified lines and the absence of right angles; hence much of the beauty of this remarkable house. The kitchen arrangements are well planned, with a spacious service-room, while the kitchen department has a separate entrance from the street. Facing the entrance to the courtyard is a statue of Jacques Cour, by Préault, erected in 1873, and his beautiful mansion now is occupied as a Palais de Justice—a satire, surely, on the iniquitous injustice which was meted out to such a good citizen, who helped his neighbours, his country, and his king, furnishing as he did the funds for the maintenance at one time of four armies. His prosperity had, however, aroused the envy of courtiers, while those who owed him large debts also conspired in jealousy against his

An autograph sketch in the courtyard, by Augustus Webb Pugin, was published in the Building News for Feb. 6, 1884. Another sketch in the courtyard from a different viewpoint, by George Edmund Street, appeared in our number for Sept. 25, 1884.

* See sketches of north entrance to Bourges Cathedral in the BUILDING NEWS for June 23, 1896 (p. 867), and further drawings of details in our issues for Sept. 7, Nov. 2 and 30 (pp. 317, 616, and 748), 1906. A sketch looking across the nave from the north, by E. Street, was published in our number for Nov. 21, 1884.

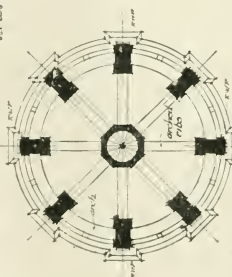
B.N.D.C.
ESTD 1852

SUBJECT OF
A DETACHED
WATER TOWER

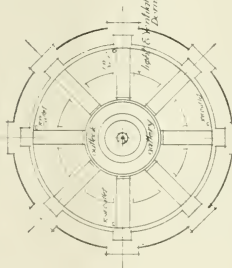
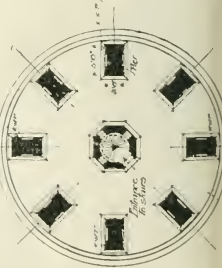
by



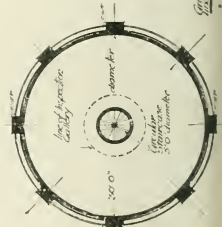
View



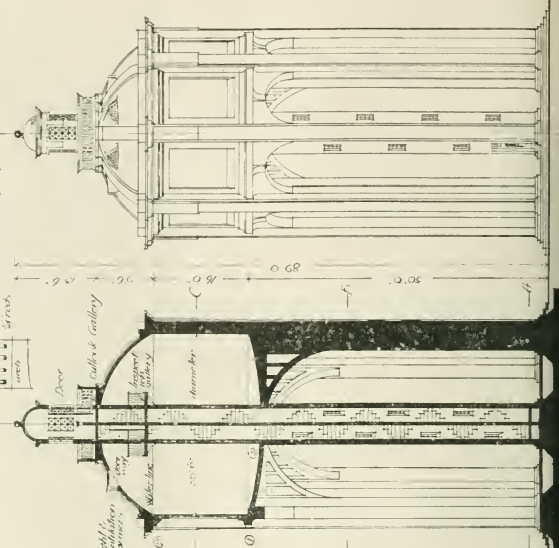
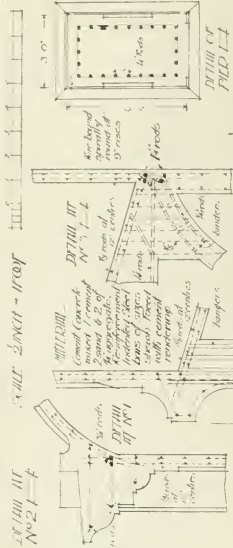
Then at B (looking up)



Plan at Top



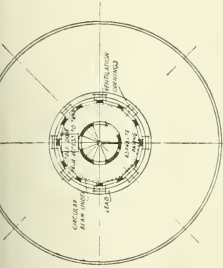
Ground



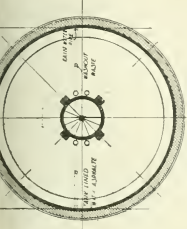
Notes: The ventilation is to be connected with the main reg. & be laid down.

Building New
Drying
Club

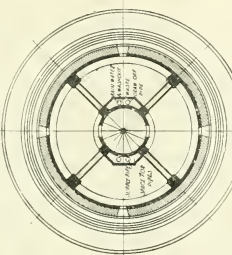
Design
for a
Water Tower



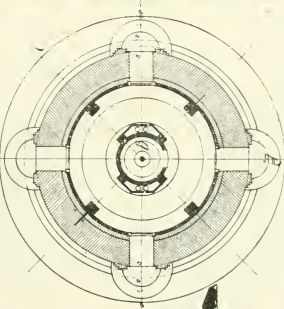
Plan of D.



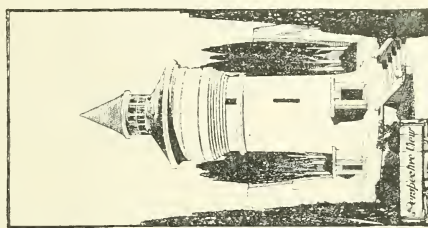
Plan of C.



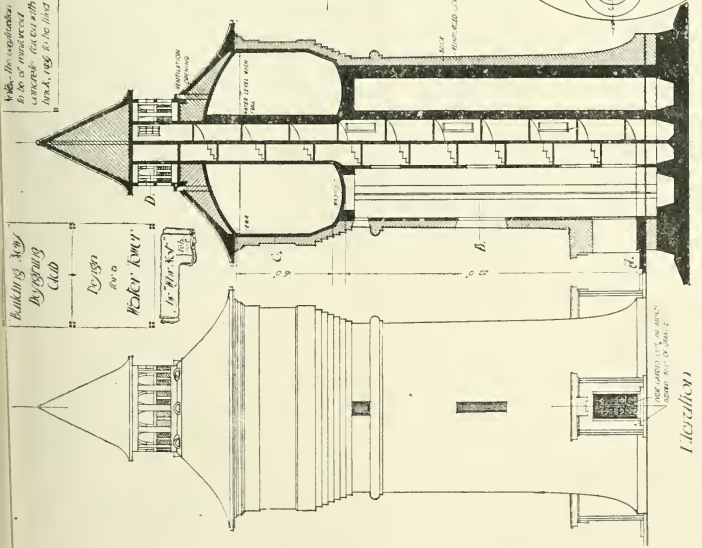
Plan of B looking up.



Plan of A looking down.



PLACED THIRD.



Elevation

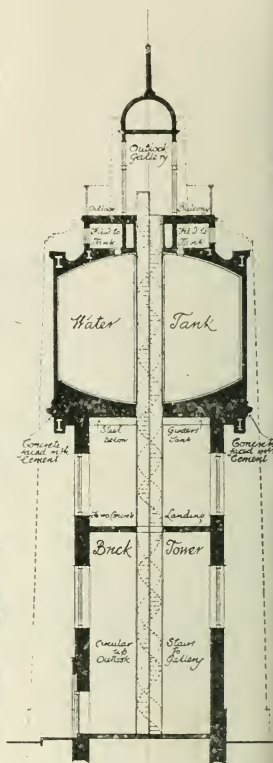
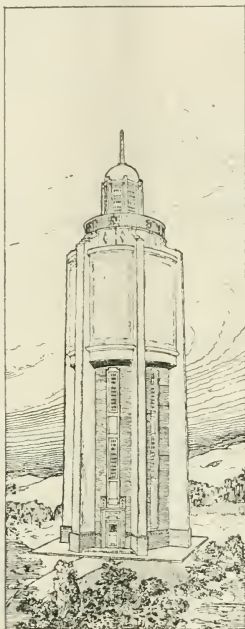
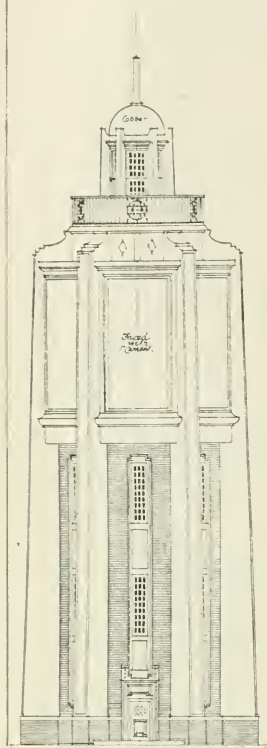
Section on line A-B.



BOND C

A
DETACHED
WATER-TOWER.Designed
by
"VERITAS"

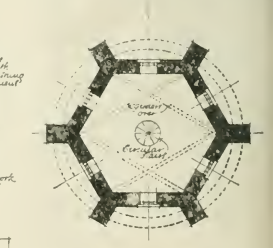
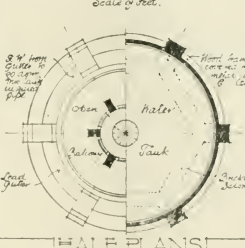
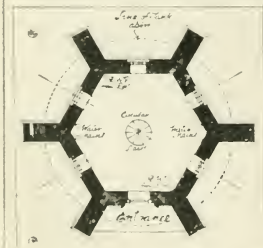
PLACED FIRST



ELEVATION

VIEW

SECTION

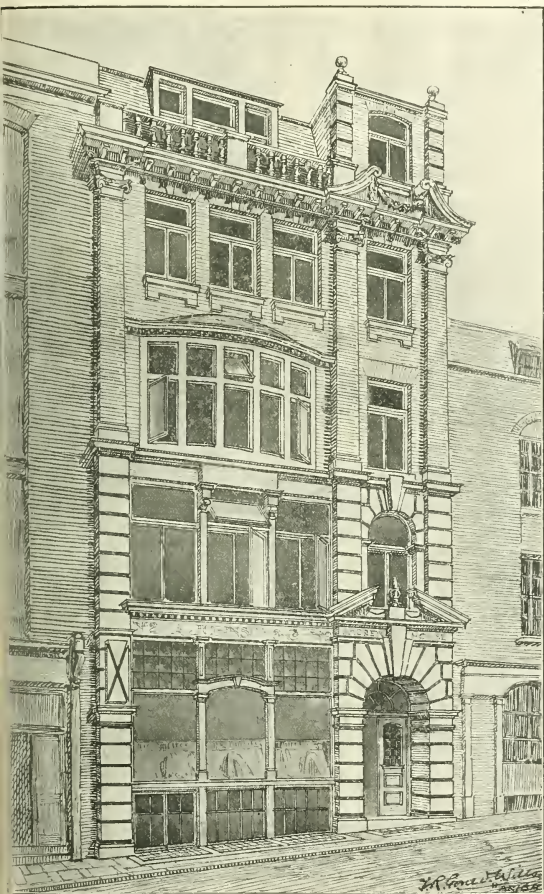


HALF PLANS

PLAN AT BASE

PLAN AT ROOF LEVEL

PLAN AT LANDING



WAREHOUSE, No. 11, ST. ANDREW'S HILL, DOCTORS' COMMONS.
Messrs. DAW, WILLS, and CHURCH, Architects.

RESILIENT SURFACES FOR ROADS.

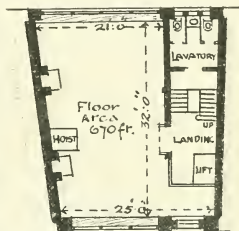
Mr. John H. A. Macdonald, a member of the Road Board, delivered a lecture on "The Road—Past, Present, and Future," at the Royal Institution on Friday evening, the 16th of Northumberland being in the chair. He stated that the problem was to find the best mode by which a road could be constructed, so that its surface would not be shaken by traffic, so that the transit might be easy for both passengers and goods, a road which would neither form puddle holes nor send mud to clog the vehicles and create a thick dust when the weather was dry; in short, that there should be no loose material on the road, except the small quantity used by surface wear, which it was found is but trifling when a sound crust had been laid in. That such a road could be laid might be seen from the Thames Embankment, which was formerly shunned as one of

the worst roads in the country, but was now used by 1,600 vehicles an hour. One thing was universally recognised—that the road of the future should be a truly bound road, in which, whatever kind of stone was used, that stone should be held together by some pitchy or bituminous material, so that it should indeed be a crust, and into which water could not penetrate. Experience showed that such a road would remain sound. Would it not be well to provide an elastic skin or carpet to lie between the vehicle and the heavy crust? Could some material be found for the exposed surface of the road, which should be resilient, yielding to traffic, but resuming its form and surface? Research had been made with pitch and bitumen, and while pitch failed to answer the requirements, bitumen had been found to be capable of being twisted without fracture, and when freed of slowly resuming its shape. It was expected that with such material laid

on the top of the main road crust, and integrated with it, a valuable road protection could be supplied, so that the road crust would be practically permanent, the upper protecting sheet being remade up and relaid as required. Engineers at the Road Board told them that this ideal road of the future need not be a costly one; on the contrary, that once the road men were trained to the new methods, the rapidly-increasing traffic of the time before us would be carried on with little or no increase in the outlay upon maintenance, and probably, in some cases, with a decrease.

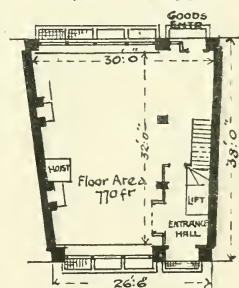
No. 11, ST. ANDREW'S HILL, DOCTORS' COMMONS, E.C.

This building is being erected on the site of two existing shops on St. Andrew's-hill. It comprises warehouse premises to meet the requirements of the soft goods trade. The entrance-hall will be lined with Sicilian and



Verde marble and paved with black and white marble slabs. A fireproof staircase will be continued from the basement to the roof, with a passenger lift to all floors, and also a goods hoist. The trade entrance is at the rear in Burgon-street. The front is being executed in Luton purple bricks with stone dressings, the shop-front being carried up to the first

BURGON STREET



ST. ANDREW'S HILL

floor in both streets—this affording ample light. The top floor in addition to the windows will have a large lantern light to make it available for an engraver's studio. The architects are Messrs. Daw, Wills, and Church, of 31 to 33, High Holborn, W.C.

An appeal is made for £1,600 (of which £300 has been raised) for the restoration of the beautiful Norman church of St. Mary, Kempley, in the Gloucester diocese. The building, which dates from 1121, is celebrated for an original barrel vault, and a perfect series of Twelfth Century mural paintings. Unhappily, the church is in an alarming condition of disrepair. Mr. Temple Moore is the architect.

Building Intelligence.

AYLMERTON, NORFOLK.—Aylmerton Church, until recently in a dilapidated condition, has been restored. The roof timbers have been renewed, and the lead recast and relaid. The panelled and traceried stone parapet had to be entirely rebuilt, the mortar having perished. The windows of the belfry have been repaired and fitted with louvres and galvanised wire netting. The serious fractures in the walls have been cut out, bonded, and rebuilt, and the walls strengthened both internally and externally. The work has been carried out by Mr. Herbert Bullen, of Cromer, under the supervision of Messrs. Lacey and Upcher, architects, Norwich.

CARDIFF.—The Coal and Shipping Exchange, Cardiff, reopened on Tuesday, the 20th, was erected from the designs of Mr. Edwin Seward, F.R.I.B.A., over twenty years ago. Recently the vast increase in the coal and shipping industries in South Wales have made it necessary to extend the building and to reconstruct the premises in certain directions. The central hall is over 100ft. long and 50ft. wide. It has had its walls covered with oak panelling, galleries have been added, and a large extension on the north side is also panelled, the general scheme of decoration being in oak and bronze. A series of bronze standards, fitted with electric flambeaux, have been carried round the upper balcony. The Exchange clock is surrounded by two Welsh dragons in oak, and at the opposite end on pedestals the British lions flank the entrance to the Exchange floor. The arms of the four lions of the Kingdom of Wales occupy drums of the coupled columns at each end, and insignia of the maritime and mining industries are on the drums of the other columns, the friezes being emblematical of "Commerce." The locks and some handsome bronze fittings are by Mr. James Gibbon, the general contractors for structural work and oak finishings being Messrs. E. Turner and Sons, of Cardiff.

MANCHESTER.—The new physical laboratory buildings at the university will be opened on March 1. The present edifices were built twelve years ago, from the designs of the late Mr. Alfred Waterhouse, R.A., and the new buildings have been planned by his son, Mr. Paul Waterhouse, M.A., F.R.I.B.A. The new laboratories stand between Bridge-street and the quadrangle facing Coupland-street, and are connected by corridors with the old ones. They are built round the John Hopkinson dynamo-house of the original buildings, and comprise several electrical laboratories, a workshop, a library, research rooms, and a lecture-hall, all faced with stone externally.

MARYLEBONE.—The town-hall committee recommend the borough council of Marylebone to approve the design and plans of Mr. Edwin Cooper, F.R.I.B.A., for a new town-hall for the borough, to cost £61,913 19s. 1d. The plan of the accommodation to be provided, together with perspective drawings of the building, is now exhibited in the Marylebone Council Chamber. It will be recalled that the design of Mr. Cooper was placed first in the recent competition (on which 126 schemes were submitted) by the assessor, Mr. Hare, and was illustrated, together with the other three premiated designs, in our issue of December 1, 1911. In our criticism of the complete proposals (p. 749, last volume) we said: "The successful architect has scored an unchallengeable position, leaving the rest of the competitors practically nowhere."

VICTORIA EMBANKMENT.—Extensive alterations are about to be carried out by the Charing Cross and Temple Stations of the District Railway, and Mr. H. W. Ford, R.I.B.A., of 16, Dartmouth-street, Westminster, at Charing Cross the booking hall and the entrances to the station will be reconstructed, and above the booking office is to be erected a

building of Portland stone and red brick, Renaissance in style, containing 140 rooms, and to be used either as an hotel or as offices. At the Temple Station the booking-office is to be rebuilt and enlarged, and a new entrance provided from the Embankment. Adjoining the booking-office will be a restaurant with a floor-space of 5,000sq. ft. The flat roof, extending over the whole of the new building, may possibly be used as an open-air tea-garden.

Engineering Notes.

NEW LAMBETH BRIDGE.—According to the Parliamentary plans deposited, the new Lambeth bridge with its approaches will be of a total length of 935ft., and will consist of five spans, the centre span being 160ft., two of the side spans 145ft., and the two outer spans 165ft. each. The clear height of the centre spans above high water is 20ft., the side spans being 15ft. 6in. and 10ft. 6in. respectively at the centre of each span. The new road surface will be 2ft. above the present level on the Horseferry-road approach, varying from 6in. to 2ft. on the Lambeth-road approach. The surface of the roadway at the centre of the bridge will be 2ft. 10in. higher than at present. On the Westminster approach the levels of Grosvenor-road and Millbank-street will be raised.

COMPETITIONS.

THE ALEXANDER THOMSON MEMORIAL STUDENTSHIP. The council of the Glasgow Institute of Architects have awarded the studentship, value £60, to Mr. James Bennett, c/o Mr. William Cowie, A.R.I.B.A., Ayr. The trustees decided not to award the second prize of £20 which was proposed to be given. The object of the competition is to select a student for furtherance of his studies by giving him acquaintance at first hand with Classical architecture, of which the late Mr. Thomson, in whose memory the studentship was instituted, was an ardent admirer, and which he practised successfully. Drawings are required from competitors as evidence of study books, and from buildings, by sketch and measurement, and besides these an original design, the subject this time being a design for a bridge with approaches. Only three sets of drawings were submitted, and the trustees would gladly have seen a larger response in the number of competitors.

AUCHTERDERRAN, N.B.—Kirkcaldy District Committee, after considering the competitive plans for the Auchterderran drainage scheme, have awarded the first premium of fifty guineas to Messrs. Menzies and Cockburn, C.E.s, 33, York-place, Edinburgh, while the second premium was awarded to Messrs. Kew, C.E.s, 216, West George-street, Glasgow.

KING EDWARD VII. MEMORIAL, SHEFFIELD.—The committee appointed to deal with the fund of nearly £20,000, which has been publicly subscribed for the above, have resolved that the memorial shall take the form of (1) a bronze statue of his late Majesty, to be erected in Fitzalan-square, in the centre of the city, and (2) a home and school for crippled children, to be erected in the Kiveton Valley, on a site of five acres, presented for this purpose by the Duke of Norfolk. Mr. Alfred Drury, A.R.A., has been commissioned to execute the statue, which will be a colossal figure of the late King in Field-Marshal's uniform, with Garter robes. The pedestal will be of grey granite, having four bas-relief panels of allegorical figure subjects. In connection with the "Cripples' Home" it has been decided there shall be a competition for the plans restricted to local architects, and Mr. E. M. Gibbs, F.R.I.B.A., and Mr. V. E. P. Edwards, F.R.I.B.A., city architects, have been appointed joint assessors.

NEWCASTLE-ON-TYNE NEW TOWN HALL.—The new town hall committee of Newcastle Corporation, who have had under

consideration the question of a site for a new city hall, in a report issued, are of opinion that the most suitable site for the purpose would be that now occupied by the Northumberland Baths, which contain an area of 4,030 square yards. One large hall to seat 3,500, and a hall of smaller size to seat 800 persons, could be provided, also suitable reception-rooms. The cost of the scheme, including a large hall to seat 3,500 persons, a small hall to seat 800 persons, reception-rooms, furnishings, etc., and site, is roughly estimated at £100,000. The value of the land is estimated at £36,270. If the council approve of the recommendation, the committee further recommend that they advertise for competitive designs for a new hall, and offer prizes for the three best: First, £500 (to be merged on commission in the event of the recipient obtaining the work); Second, £250; third, £125. The committee had also referred to them the question of providing suitable municipal offices and buildings upon the present site; but they are of opinion that their powers and duties should be limited to the question of the new city hall, and suggest that any rearrangement or reconstruction of the present buildings for municipal offices should be left out by the estate and property committee.

WASHINGTON, D.C.—For the Perry Memorial fifty-four sets of designs were received, and are being hung in the National Museum in Washington, D.C. The Commission of Fine Arts have spent three days in examining the plans, and on the recommendation of their professional adviser, Mr. F. Miles Day, of Philadelphia, the Inter-State Board has made its award of the prize to the author of design No. 5, and appointed him architect of the memorial. It also awarded the first prize to design No. 17, the second to No. 34, and the third to No. 54. On opening the sealed envelopes containing the names of competitors, it appeared that design No. 5 was by Messrs. J. H. Freedlander and A. D. Seymour, associated. It also appeared that the design numbered 17 was by Mr. James Gamble Rogers, the design numbered 34 was by Mr. Paul F. Cret, the design numbered 54 was by Messrs. Dillon, McLellan, and Beadle.

YORK.—We are informed that 203 designs have been received in connection with the competition for the "Knots" in the Municipal School. Messrs. T. Mellard Reade and Sons, of Liverpool, are the assessors.

The memorial to the late Archbishop McHale will take the form of a church to be built by Lahardine, Co. Mayo. The architects are Messrs. W. H. Byrne and Son, of Suffolk-street, Dublin.

The architects of Ruskin College, Oxford, are Messrs. Joseph and Smithers, of 83, Queen-street, Chesham, E.C., not Mr. Basil Chubb, as was stated in our issue of February 9.

Sir John Gay Newton Alleyne died on Wednesday at Falmouth at the age of 92. He was Warden of Dulwich College from 1843 to 1851. From 1852 to 1880 he was engineer and manager of the Barrow Railway Co. He was also a member of the Institutions of Mechanical and Civil Engineers, and was vice-president of the Iron and Steel Institute. Sir John was responsible for the building of the large span roof of St. John's Church, Falmouth.

The town council of Ipswich has appointed Mr. R. C. Wrinch, A.R.I.B.A., as architect of a school to be built in St. Helens district, his remuneration to be at the rate of 10s. per child accommodated in the school, as certified by the schoolmaster. Mr. Wrinch has been appointed as quantity surveyor, his remuneration to be 1½ per cent. on account of any tender accepted for which quantities were prepared, less the amount of any provision for contingencies included in such tender.

The first lot for the new waterworks to be constructed by the Abernethy and District Water Board at Lower Cwmoy, at the foot of the Black Mountains, about five miles from Abergavenny, was cut on Wednesday last week. Mr. John Latham, the engineer, in making the first cut, was very hard on the soil, the first sod, said they were inaugurating a vast scheme, by means of which the 90,000 inhabitants of the Western Valleys of Monmouthshire would have a pure supply of water. The contractors are Messrs. Underwood and Walker, of Dukinfield.

Correspondence.

THE POLICY OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

To the Editor of the BUILDING NEWS.

SIR,—I very greatly fear that matters are being allowed to slide at Conduit-street in regard to the unification of the profession, and as one who did not intervene at the last Business Meeting for the reasons mentioned by "One Who Wished To Speak" (your correspondent of the week before last), I also thought the proceedings most unfortunate, being based as they were upon reaction so displayed as to induce half-hearted supporters to retract, and it is precisely this result which now seems simmering.

I hear, however, that the Society of Architects has at last given its consent to the publication of a verbatim report of the proceedings of January 8, and consequently in the next issue of the R.I.B.A. Journal of Transactions of Feb. 24 this will appear. It is to be hoped that the report will be printed in full, and not "edited," but given in its entire amplitude, so that the position taken up by the obstructionists may be exactly realised as then expressed. The hands of the dial may be set back for the time, but only for a moment. —I am, etc., A FELLOW.

THE LATE MR. T. M. RICKMAN

SIR,—Selling in the BUILDING News of the 16th inst. the account of the combined meeting of the Architectural Association with the Junior Institution of Engineers, at which a vote of condolence to the relatives of the late Mr. T. M. Rickman was carried, I beg to say that Mr. T. M. Rickman was the first to bring to public notice the importance of improving the drainage of the metropolis, and that he was, since carried out in London, the Thames Embankment and the Holborn Viaduct. Mr. Rickman read a paper to the first-named association, I believe in the year 1837, on the advisability of carrying out the two works I have here named. I was the junior member of Rickman's office at the time. I was, by his request, the first to visit the districts of the Thames, and for the Viaduct from Hutton Garden to Snow Hill, and further. I attended this meeting when the paper was read, and assisted in putting tracing on blackboard. I feel sure Mr. Digby was one of the leading architects, was chairman of the meeting. Mr. Rickman's office at that time was in the Strand, near street.—I am, etc. W. W. STANTON.

-37, Newmarket-road, Norwich. Feb. 19.

The city of Victoria, B.C., has formed a local chapter of the British Columbia Society of Architects. Mr. Houlton Horton is president, and Mr. F. M. Rattenbury, honorary president. The secretary-treasurer is Mr. Jno. Wilson.

On page xi, in our issue of Jan. 26, we stated that the Coatsstone Decoration Co., of 77, Mortimer-street W. were "supplying plaster decoration to 75, Strand." We are informed that this material is an imitation stone applied in plastic form, but there is no plaster in the same.

The Hampshire County Council have united with the councils of the county boroughs of Bournemouth and Southampton, for the erection of a new lunatic asylum at Park Prewett, near Basingstoke, at an estimated cost of £355,000, exclusive of laying out the grounds, furniture, and equipment. The building will provide accommodation for 1,400 patients, and will be erected on a site of 302 acres.

The foundation stone of a new church in the Toller-land district of Bradford was laid on Saturday afternoon by Viscountess Mountgarret. Lord Mountgarret has contributed £7,000 towards the cost of the building, while the site has been given by the Ackroyd family. The church will be 125ft. long, 75ft. wide, and 60ft. from floor to ridge. The architects, Messrs. Nicol, of Colmore-row, Birmingham, have allowed an uninterrupted area for a large congregation, with no break in the architectural lines to distract attention from the altar, which is enshrined at the east end in a semicircular and semi-domed apse.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

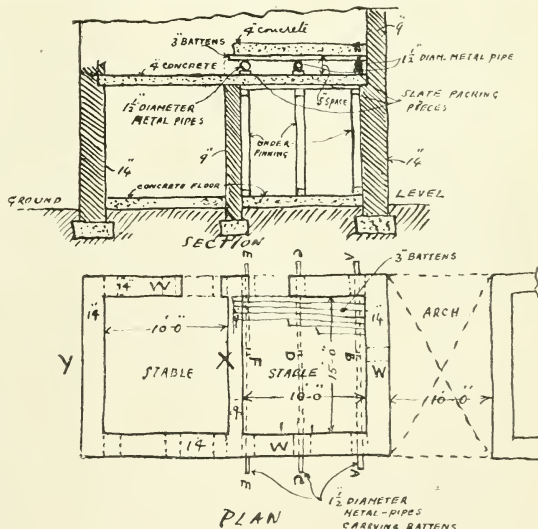
All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We award the guinea to Mr. Chas. A. Longley, 52, Ivanhoe-road, Denmark Park, London.

QUESTIONS.

[13089].—AIR-TIGHT FLOOR.—It is desired to construct a good air-tight floor above two horse-boxes or stables, and as the room above is to be a dormitory, the local authorities insist that the floor must be laid in two separate floors, with an air-space



between them. The specification is 4 in. of expanded-metal concrete floor, laid in usual way, then a 5 in. space, then another 4 in. floor as before, with a good number of air-bricks to ventilate the space, the top floor to lay flat, and the 5 in. space to be filled and embedded in concrete to receive tongue and grooved boarding. The foreman says this cannot be done, as the 5 in. space is too small to allow the carry top floor cannot be removed after the floor is laid. I proposed the following way: To lay the floor in usual way, then lay a 5 in. space, then to lay half of the upper floor at one time, by using six metal pipes of 1 1/2 in. diameter, and placing them on top of first floor, right through from wall to wall, and then lay the other half of the floor, and so other, as at B, D. and F. These pipes would all be packed up by pieces of slate at their inner ends, and the floor would be laid on top of the pipes, and then close together on top of pipes to carry upper floor. When the floor is set the slate packing pieces could be removed, and the pipes drawn out, and the floor through a hole in the wall, and the pipes drawn out. Then the battens would all be drawn out, and the 5 in. cross wall at X the only packing left, and the floor would be laid in usual way.

at D; but I think these two pipes could easily be drawn out when both their ends were loose at C; then the other half of the floor could be laid in the same way, and the battens drawn out at Y. The holes in the side walls where the pipes are placed would be filled in afterwards with air-bricks for ventilation for space between floors. This floor would then be supported on the walls at W W W. The only parts where it would not be supported would be at the three corners where the pipes are laid, but these would be filled in after the battens had been extracted. Would this be a practicable and good way of doing the work?—T. H. Taylor.

REPLIES.

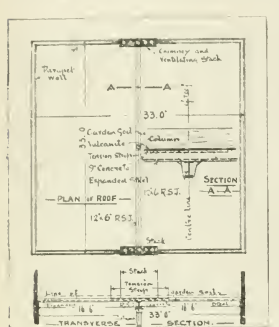
[13055]—A2. AFRICAN ROOFING. Assume a load of 21cwt. per foot super, the total would be about 136 tons. Dividing this into three bays by two girders, each would have to carry a load of 45 tons. The beam would have to be at least 21in. deep to avoid deflection. A beam 22in. by 15in. wide by 154lb. per foot would be the lightest. The roof would be made of some 1-in. Moallitheorite girders at 15in. centers, with twisted hop steel passed through their webs, and flush the top off with asphalt, about 1in. thick. The information is rather too meagre. In a job like this there are so many circumstances which govern the design, for example, for the following questions: (1) What weight will each ton of concrete weight bear? These to be hoisted? Again, they will be about 36ft² long, requiring special railway trucks, and hence how many will be carried? (2) What weight would the concrete roof be?—this is important, on account of hoisting up the materials and "horsing" the centering. (3) How much weight will the roof be able to carry? Has the asphalt to be dressed into a gutter or to a parapet wall? All these items will materially influence the design of the roof girders, and the weight of the roof. The roof would be made out at about £100. The load 22x15, without 21cwt.

intermediate support would be impossible for nearly one-third.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

Roofing.—**AMERICAN ROOFING.** The accompanying figures illustrate very clearly the construction of a garden roof on the American principle, and are almost identical in area to one the writer designed for a small house in the city of New York, in the last year. The roof consists essentially of a main steel beam and concrete reinforced with steel of a net sectional area calculated to carry a safe load of 100 lbs. per sq. ft. of roof area, plus the weight of the structure, a crowd of people, and 15 in. of garden soil thereon. The rolled steel joist placed centrally is 12 in. by 6 in. by 51 lb. British standard weight, and is supported by a 6 in. diameter column, as shown on the plan by a 6 in. solid steel column. The load is therefore distributed equally over the whole area, the effective span being 16 ft., and taking the area of the roof to be 160 sq. ft., the section modulus of 63 in. is sufficient. The figure shows the

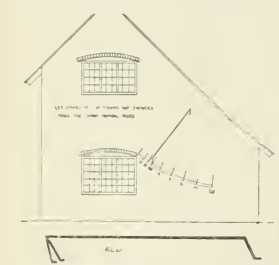
$$\frac{62.58 \times 8 \times 7.5}{16 \times 12} = 19.55 \text{ tons}$$

siderably under the limit of 1,300 of its span, while the depth also falls well within the limits. An alternative, if the circumstances will not permit of a column being used, is to replace this rolled steel joist by two 16-in. by 6-in. by 60-lb. I.B.S.'s, bolted together with cast-iron connectors. The whole area is covered with 9-in. of Portland cement concrete, reinforced with rib-mesh expanded steel, the concrete consisting of one part Portland cement, two parts sand, and three parts broken stone, brick, and gravel of various sizes between 1-in. and 2-in. mixed, etc., to the requirements of the Standard Specification, and the work executed by men experienced in reinforced concrete construction.



forced concrete construction. The roof is considered as a horizontal slab exposed to a live load of 30 to 60 lb. per foot span. The roof is finished with either a covering of asphalt or vulcanite. The roof constructed in this manner ensures a uniform temperature throughout. It is somewhat difficult to prevent surface cracks, which are caused by uneven expansion and contraction of temperature, and therefore the reinforcement should be so placed and of the smallest sectional area. In most cases these cracks occur immediately above the line of reinforcement. Short lengths of cast-iron pipe should be inserted in the concrete to form ventilating shafts. This provision of ventilating the roof below during the construction of the roof is of the utmost importance; otherwise condensation will follow, which afterwards is an expensive trouble to rectify.—Chas. A. Longley, 52, Finsbury-road, Denmark Park, London.

[13077].—STUDIAL ON SIDE OF HOUSE.—I happened to be going to Dorking during the weekend, and took a walk to see the sundial mentioned by Mr. Garrod. I discovered it at South Holmwood, on the house owned by Mrs. Lawrence, the garden. The garden in question is a whitened brick one, forming part of a very artistic house on the main road. The little sketch herewith will show



the arrangement of the dial. The iron rod is a square one, with the ends apparently split and bent to form legs in the manner shown. It is perfectly plain. The segment on the wall is pointed on, but believe the degrees are formed with wire. The motto is above the dial, not below, and reads,

"Let others tell of storms and showers :
I mark the sunny morning hours."

So far as I could calculate without a compass, the dial faces south-east.—L. F. Smith, Westhall, Chardon-road, Redhill.

The two following pictures forming part of the Turner collection, but previously exhibited, have been placed on a screen in Room XXI at the National Gallery for temporary exhibition. George IV. at St. Giles, Edinburgh.—George IV. at a banquet in Edinburgh.

LEGAL INTELLIGENCE.

IN RE DANIEL NORTON AND SONS.—Mr. Registrar Broughton presided on Friday over the public examination of a bankrupt under the supervision of Mr. Daniel Norton, sole surviving partner of the firm of Daniel Norton and Sons, late of the Estate Office, Cheltenham, Gloucestershire, timber merchants. A statement of assets and liabilities was submitted, showing assets £53,928 18s. 4d., of which £22,574 8s. 1d. was expended to rank, against estimated assets £5,027 19s. 7d. Replying to Mr. W. G. Williams, Assistant Official Receiver, the bankrupt stated that the business of Daniel Norton and Sons was established by his father probably before 1800. After 1833, when his father retired, he and his brother, Jason Delves Norton, continued the business. In 1904 they agreed to wind it up as quickly as possible, but, owing to the bankrupt's ill-health, the winding-up was, after 1905, left to his brother, who continued to carry on the business. In November, 1911, his brother died, and, on investigation, the firm was found to be insolvent. He attributed the failure mainly to losses in the timber trade since 1904, and to the heavy drawings of his brother. The examination was concluded.

IS A CANAL A "BUILDING"?—Before Mr. Justice Warrington in the Chancery Division on Friday, the Regent Canal and Dock Company (Limited), applied for an injunction against the London County Council in respect of the use of the company's property in New Bridge-road, Shoreditch. Mr. Ballour Browne, K.C., moved for an injunction to restrain the County Council from entering on land comprised in the Council's notice to treat, viz., the New North-road Bridge, Shoreditch. The Council were purporting to act under a Private Act of 1910, obtained by them for the purpose of making certain tramways, and incidentally to make certain road-bridges. The land which the Council proposed to take was most of the embankment between the towing-path, and also the wall which bounded the company's property to the north. But the Council also gave notice to take a portion of the bridge itself. They proposed to make a bridge, but they had given the Company no notice to treat for the waterway under it, and under the Land Clauses Act, the Company gave the Council notice that unless they came to some agreement with the company they would sue for damages. The Council refused to give notice. It was a silly thing to be fought out between two great bodies, but counsel thought the County Council would have to come to terms with the company so as not to impede in any way the canal. Mr. Morris, K.C., for the Council, submitted that the Council had included in their notice to treat was the land and all the land which they required for the purpose of their improvements, and it was the land they were authorized to take. The notice was within the Council's strict legal rights. His Lordship, giving judgment, said that the only question he had to determine was whether the pieces of land the County Council proposed to take were part of a building under the true construction of Section 92 of the Land Clauses Consolidation Act. In his opinion he was bound to refuse the injunction on the ground that the pieces of land comprised in the notice to treat were not part of a building within the meaning of that section. The canal was a building under the construction of the section. The motion therefore failed.

LIABILITY OF BUILDERS AND EMPLOYERS. IMPORTANT ACTION AGAINST AN INSURANCE COMPANY.—An action of great importance to builders and contractors in regard to insurance, and of great importance for the prevention of personal injuries caused to people in accidents through the negligence of employees came before Mr. Justice Phillimore, sitting with a jury in the King's Bench Division on Tuesday, Feb. 20, when Mr. Morris Joseph Allen, builder, and decorator of Adelaide-road, Shepherd's Bush, London, proceeded against the London Guarantee and Accident Co., Ltd., of London, in regard to an alleged breach of agreement. The defendant company denied liability. Mr. Colman, solicitor for the plaintiff, said that the defendant company were represented by Mr. Clavell Salter, K.C., and Mr. Harris.—Counsel stated that Mr. Allen had a policy with the defendant company whereby he was indemnified for the value of his property against any loss which might be legally liable to pay as compensation for injuries caused to any person through any horse, or horse-drawn vehicle, belonging to the plaintiff or in the charge of any authorized driver in the service of the plaintiff. On January 28, 1910, a driver employed by the plaintiff was in charge of a four-wheeled van at Vauxhall Bridge-road, Battersea, and, as the result of an accident two men, named Turner and Risdel, were thrown to the ground and injured by the wheels of the van. Eventually,

proceedings were taken by Turner and Risdel against Mr. Allen to recover compensation for their injuries. The defendant company, in accordance with the terms of the policy, gave instructions respecting the defence of the actions, which were heard before the Lord Chief Justice and a jury, with the result that Turner and Risdel were awarded compensation of £75 and costs. The costs were taxed, and, subsequently, the defendant company put execution in on the plaintiff, who, in order to save his goods, had to pay a sum of about £243. After the trial the defendant company had been awarded to the solicitors to the plaintiff £375; but it was intimated afterwards that the odd sum of £75 had been paid in mistake, as the total liability of the defendant company under the policy was £300. Mr. Colman proceeded to argue that as the defendant company had taken over the defence of the action they could not now recover losses incurred in their efforts to evade liability. They made voluntary payments in order to get a better result, consequently, the escaping of liability altogether. In regard to the argument as to the liability being limited under the policy to £300, he submitted that it was for the defendant company to prove that these two claims arose out of "one accident" or "one occurrence." Mr. Clavell Salter (for the defendant company) argued that the policy fixed a limit of £300 as to compensation, costs, charges, and all expenses. Counsel called the men Risdel and Turner to give evidence as to the accident, and as to which of them was the opinion that there was "one occurrence" out of which the accidents arose. Mr. Clavell Salter, in further argument, contended that under no circumstance could more than £300 be recovered. He contended that the defendants would not press for the return of that. Replying to Mr. Salter, Mr. Colman argued that if assured persons under the circumstances were liable to have large bills of costs run up against them, they would be liable to be liable in controlling them, such a contract of indemnity would constitute a burden rather than a benefit. The defendant company were not asked to go and fight the claims, and if they chose to adopt that course, the plaintiff could not be liable to regard it as a benefit. In delivering judgment, his lordship stated that his view of the contract between the parties was that if the plaintiff defended an action, he could not recover from the company more than £300, but that the company was not bound to pay the required sum of £300. A stay of execution for £218 3s. 3d. with costs.—A stay of execution with a view to an appeal was granted to the defendants.

ANCIENT LIGHTS.—COCKERILL V. THE MIDLESEX ROUGH CO-OPERATIVE SOCIETY.—THE case of Cockerill v. the Midlesex Rough Co-operative Society, Ltd., came before the House of Lords on Thursday, the 15th inst. Lords Macnaghten, Atkinson, Shaw, and Robson dismissed the appeal brought by Mr. H. M. Cockerill against an order of the Court of Appeal in favour of the respondents, the Midlesex Rough Co-operative Society, Ltd. The facts have been fully reported in these pages (see p. 671, Nov. 14, 1901), when the plaintiff's appeal from Mr. Justice Ridley's decision was discussed by the Court of Appeal.—Lord Macnaghten said that the Court of Appeal had assumed the decision of Mr. Justice Ridley, who had refused, in his discretion, to grant a mandatory injunction. In his opinion, that decision was right. It seemed to him that the Court of Appeal, where elaborate judgments had been delivered, had not been justified in raising with too much ceremony. It was not necessary for him to trouble the House with the facts in order that they might pass their judgment on whether this undertaking amounted to a new covenant, which, on the authority of "Doherty v. Allen," should be enforced by mandatory injunction. Whether, on the facts disclosed, an injunction should be granted, was a matter of discretion for the judge. Mr. Justice Ridley had been right in his decision. It was perfectly clear that no damages had in fact been sustained by the plaintiff, and therefore he should merely move that the appeal be dismissed, with the usual consequences. The other noble and learned lords concurred. Order accordingly.

ARCHITECTS' CLAIM FOR FEES.—Judge Bradbury gave judgment in the Bolton County Court on Tuesday in several motions for the reversal of decisions of the official liquidator in respect of the claims of Messrs. W. H. Manning, Company, Wigan. There had been several sittings, and lengthy argument over a claim by Messrs. Stott and Sons, architects, Manchester, for £8,475 damages (based on a commission of 10 per cent. on the amount of the claim) for the building of two mills. The building scheme

never matured, and the question was whether the commission was payable to Messrs. Stott on mills "to be" built, or on mills "when" built. The Judge said he agreed with the Official Receiver's contention that the commission could not be due until the building had been erected. After reading an estimate given by Messrs. Stott, now a mill of the kind could be financed, the Judge said there was no binding contract. "I go further," he said, "and I don't hesitate to say that if the intention of the directors and Messrs. Stott was that the company should be bound to build, then a contract was so utterly reckless and imprudent that it was not and could not have been passed in the bona-fide interests of the shareholders." It would have been a gross breach of trust on the part of the directors. The question remained, Were the architects entitled to anything at all? The official liquidator had said they were entitled to nothing. He did not agree with that contention. They rendered service to the company at the latter's request. As to the rate of payment, he ridiculed such a charge as £10 per hour. He allowed £250 as a reasonable remuneration for the work done; they had received £1,500; so they had been overpaid £1,250. As to Mr. H. Stott's claim of £1,941, representing £1,770 loan money, and £171 interest, the Judge said that as to £270 the claim was good, as that was money lent in cash to the company. The £1,500 interest money, alleged to have been lent in several sums to the company, One cheque for £350 was sent by Messrs. Stott to the company, which was asked to place it to the credit of Mr. H. Stott as a loan, and to send the interest on account of services rendered. The real substance of the payment was the conversion of a claim for architect's services into a claim for money lent. He gave judgment for the £270 lent and interest, for £250 and interest for services rendered, making a total of £520 and interest. As to the £1,770 interest actually paid to Mr. Stott must be deducted. In this case the liquidator must pay the costs.

A READING ARCHITECT'S BANKRUPTCY.

Mr. William George A. Hambling, who for many years had practised as architect and surveyor at Reading and Caversham, did not appear at the Reading Bankruptcy Court on Friday to undergo his public examination. The Official Receiver (Mr. Cecil Mercer) informed the Court that the architect was believed to have fled to America. The examination was adjourned *sine die*.

Mr. Charles Henry Mabey, sculptor, late of Westminster, died on Saturday at Stinchill Mansions, Streatham, in his 77th year.

The wooden annex at Harrogate Pump Room is to be replaced by a glass and iron structure to cost £2,000, and giving a space area of 2,773 square feet, against 1,927 in the existing wooden structure.

Mr. William Finch, deputy-surveyor, Cumberland, was promoted on Monday to the post of county surveyor and bridge-master, in the place of the late Mr. G. J. Bell. The salary to start with is £250, and it will be advanced by £25 yearly till it reaches £350.

At the Mart, Takehouse-yard, on Tuesday, the freehold site, 3,040 square feet, of the Church of St. Mary, Spital-square, was submitted for sale by Messrs. Debenham and Tewson. One of the conditions of the sale was that the purchaser must rake down the entire fabric. The property was bought in at £1,500.

The corporation of Margate have voted an honorarium of £370 to Mr. E. A. Bore, the borough engineer, for special services in connection with the erection of the pavilion and water-gardens. The services of Mr. J. S. Stannard, assistant surveyor, and Mr. L. L. draughtsman, have been acknowledged by gifts of £25 each.

The baths and wash-houses committee of the corporation of Newcastle-on-Tyne decided on Tuesday to erect baths and wash-houses on a piece of land near the police-station at Walker, and also on a site near Atkinson-road council school, Benwell. It was also decided that competitive plans be advertised for, and a sub-committee was appointed for this purpose.

The foundation-stone of the King Edward VII. Memorial Workingmen's Hospital and Staffsfordshire General Hospital was laid on Friday. The extension consists of a new block on the north-east corner of the main buildings, comprising two wards in two stories, with eighteen beds. The estimated cost of the extension and its furnishing is £7,235. Mr. A. W. Worrall is the architect, and Mr. H. Willcock, of Wolverhampton, the builder.

Our Office Table.

An effort is being made to save and re-erect in a park the main facade of the old town-hall in King-street, Manchester, which has of late years been used as a free library, and is now in course of demolition. Mr. Edgar Wood, the president of the Manchester Society of Architects, and his council strongly support the proposal, and it is understood that the proprietors of Lloyds Banking Co., who have purchased the site and materials of the building, are showing a commendable public spirit in the matter. The old town-hall was built between 1822 and 1825, and its creation was one of the first and most important steps in the progress of Manchester towards a great corporate existence. The dignified Ionic facade which it is hoped to save is modelled on that of the Temple of Erechtheus at Athens. The Classic facade is particularly suitable for re-erection if placed on a suitable site, with foliage and water surroundings, as Mr. Wood has illustrated by a spirited drawing, showing a park, with a circular pond, and the cost of its removal should not be great. The parks committee are holding a special meeting to consider this excellent and timely suggestion to-day (Friday).

Mr. Edward Schroder Prior, M.A. (Cantab.), F.S.A., F.R.I.B.A., was elected Slade Professor of Fine Art at Cambridge on Tuesday, in succession to Dr. Charles Waldstein, resigned. Professor Prior, who is in his 60th year, was educated at Harrow and Caius. He was distinguished as an athlete at Cambridge, and won the Amateur High Jump Championship in 1872. He was a pupil of Mr. Norman Shaw, A.R.A., and held the post of Lecturer in the Medical School of the University and the Henry Martyn Hall. He is architect to Harrow School, and to Winchester College, and has designed and carried out numerous churches, rectories, and houses. Mr. Prior was one of the founders of the Art-Workers' Guild, and has been secretary of the Arts and Crafts (London) Exhibition Society since 1902. His publications include *A History of Gothic in England*, and books on the Cathedral buildings and the Mediaeval figure-sculpture of England.

The Victoria and Albert Museum has recently acquired a considerable number of drawings and designs by Alfred Stevens from the collections made by two of his pupils, James Gamble and Reuben Townroe, both of whom died in the early part of 1911. These have now been mounted and labelled, and a selection has been placed on exhibition in Room 75, advantage being taken of the opportunity to rearrange the drawings by Stevens already shown there, which are now grouped according to subject throughout the gallery. Designs for the decoration of St. Paul's Cathedral form one of the most important sections of the exhibition, the various studies in red or black, chalk or pencil, being illustrated by tracings made by Townroe and Stannard, and completed by Gamble. The designs and studies for the Decoration of Deybrook have also been brought together and are now supplemented with several full-sized working drawings of details in colour, which have not before been exhibited. One of the most interesting of the new acquisitions in this class of work is a sketch in water-colour for the decoration of a staircase and landing of a public building. The Museum has acquired several early studies both of landscapes and from works by Old Masters, made by Stevens during his first visit to Italy, among them being small copies in water-colour of Titian's "Flora" and "Eleanore Gonzaga." The collection also includes studies in black chalk for the decorations of Dorchester House, and designs for silk-stuff work, candlesticks, street lamps, pottery, and stoves, as well as a large number of slight sketches of architecture and furniture and memoranda of subjects for figure compositions. The Museum now possesses upwards of 500 drawings and studies of this distinguished British artist: those not exhibited in Room 75 or Room 48,

where a series related to the Wellington Monument has been hung, being obtainable on application in the Students' Room (7) of the Department of Engraving, Illustration, and Design.

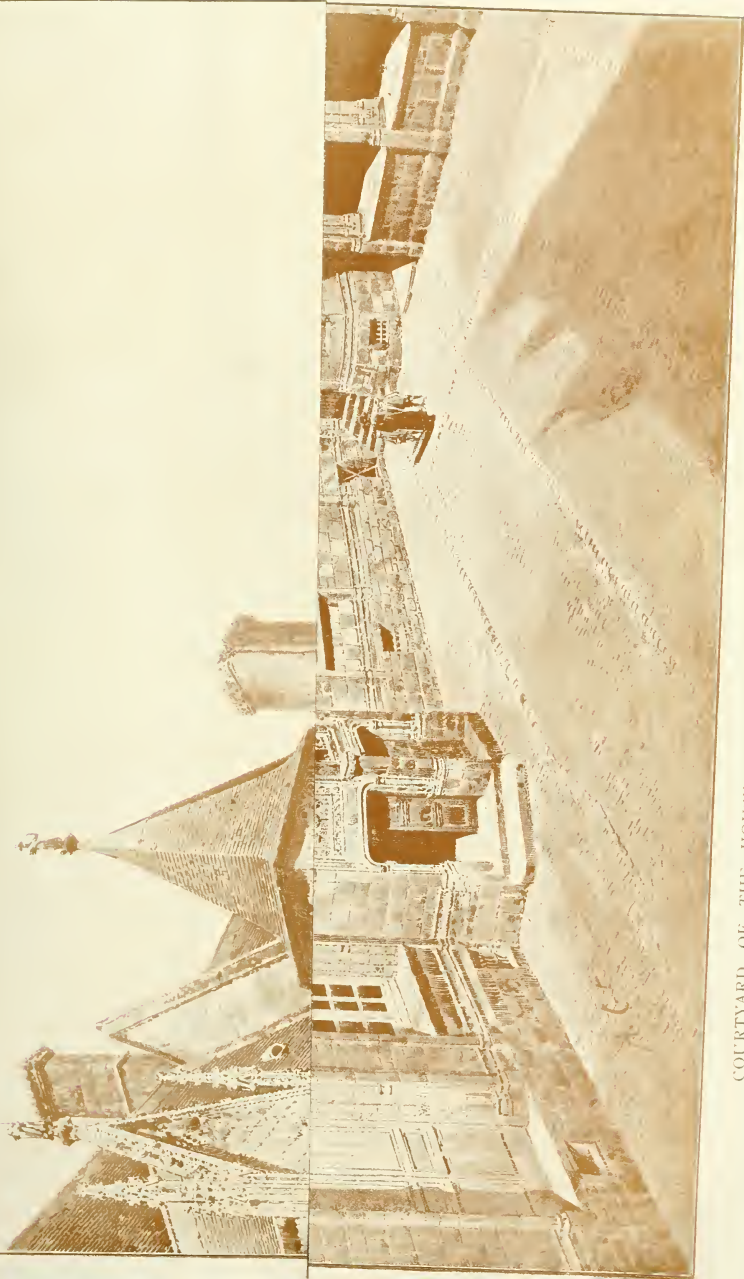
The most important Local Government Board inquiry held in Dewsbury for very many years was conducted at the town hall on Friday by two of their Inspectors, Mr. Hetherington, C.E., and Mr. Maxwell, barrister. The town clerk appeared for the corporation, who are seeking powers for greatly extending the sewage works and dealing with trade effluents from woollen manufacturers, distillers, and other works by a Provisional Order; and, further, to alter and amend Acts relating to the gas and water undertakings, for which an additional £50,000 is required. Various interests were officially represented. The town clerk explained that the sewage works of the corporation, as designed for the old borough, were amply sufficient for the treatment of domestic sewage, and proved satisfactory, but trade effluents began to be poured into the sewers without the knowledge or consent of the corporation, and the result was that the works were seriously damaged, and the proper treatment of sewage became so unsatisfactory that complaints were made about the effluent poured into the river. The corporation were compelled to extend the works, and the cost might be from £45,000 to £90,000. They were prepared, under the present scheme, to receive and treat trade effluents.

A scheme for the improvement of the centre of Dundee has been prepared by Mr. James Thomson, city engineer, and was submitted on Tuesday to the town council, who appointed a committee to consider and report upon the proposal in all its bearings. The ambitious scheme practically involves the reconstruction of a large central area. First of all, it is proposed to demolish property to the west of the square facing the Town House, and to widen the Overgate for a distance of nearly 1,500ft., making that thoroughfare 70ft. wide. Next, it is proposed that all the old property behind the existing Town House should be demolished, and that on the space secured a covered public market should be erected. On the understanding that the co-operation of the Harbour Trustees is obtained, the idea of acquiring the old Earl Grey Dock is elaborated, and on the site thus secured it is suggested there be erected municipal buildings and a city hall. Staff improvements in the way of street-widening and laying and property demolition in the vicinity of the railway stations are outlined. The property marked for demolition yields a rental of £24,800, but the engineer states that by the scheme land of the value of £200,000 would be acquired, and expresses the opinion that the project could be financed. A supplementary scheme is also submitted for the reclamation of eighty-five acres of ground from the Tay in front of the existing Esplanade.

The London County Council on Feb. 1, 1910, accepted the tenders of Messrs. John Leaning and Sons and Messrs. J. Rider Hunt and Co. to take out quantities for the first section of the substructure and superstructure of the new Central Railway at a remuneration divisible in equal proportions between the two firms, of $\frac{1}{2}$ per cent. of the cost of the works. It is now necessary to obtain quantities for the second and third sections of the substructure of the new building, and the two firms referred to have offered to take out these quantities at the same rate of remuneration as that for which they prepared the quantities for the first section. The Council are recommended by the building committee to accept this offer. The remuneration to be made will be about £500.

Mr. E. Evans Cronk and Messrs Potter and Harvey, architects practising in Sevenoaks, recently wrote to Earl Stanhope, expressing their surprise on learning that the King Edward Memorial Committee had nominated as architect for the proposed hospital Mr. W. A. Pite, F.R.I.B.A., of London, upon the grounds that he is the architect of the King's College Hospital. They submitted that the

COURTYARD OF THE HOUSE OF JACQUES CŒUR, BOURGES, Drawn by MR. A. C. FARR.





THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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A PAGAN "POT-BOILER."

It is so rarely that the faults of one century are mimicked by the faults of an older one (perhaps thousands of years older), that to come upon the prophecy of an English "pot-boiler" of the nineteenth century in Roman work of about Constantine's time, seemed, when it was dug up, a remarkable thing. We live amongst "pot-boilers," and die amongst them, and the brightest hope an architect can cherish is to rise again in a world where "pot-boilers" shall be no more. A "pot-boiler," in an artistic sense, is something that pretends to be artistic without being so, and that pretends to be so because, in a mad age like this, people who have money are ready to give it for what only pretends to be artistic. What they will give it for depends on the form their mental affection takes. It may be for marble or for masonry; for metal or for mouldings. People long gone by produced a world full of these materials, and of cognate ones, all designed and made in quasi-artistic ways. People who live now cannot, except very rarely indeed, make any new thing artistically. It is not in them to do so, and they cannot be taught it; or, if they could, the men through whose hands the work has to go while it is "on the make" would destroy, and actually do destroy, all artistic features which its so-called "designer" intended to put into it. Yet artistic design cannot be done without. The world wants it, and will have it, or will be gulled into believing that it has got it; and, for the sake of thinking that it has got it, will pay long prices for whatever pretends to be it.

This is how it happens that a real designer sometimes, though seldom, is rich. Either he is really clever, and, if so, deserves what he gets—or, much more probably, he is a clever pretender and forger, and so, instead of deserving the money, deserves, one might say, to end his days in the gallows in addition. It is not so very long since criminals were hanged for forgery—and richly, indeed, most of them must have deserved it. But if any of them suffered for what was no forgery at all, but real, rare, artistic work, then it was not they but their persecutors, who really deserved the punishment, and, were they living, would deserve it now. To forge a one-penny note may be but a small thing in itself. The notes themselves, at last, were partially considered to be forgeries—and a part of them were so—and the Government of the day withdrew them at last because they had outlived their reputation. If Mr. Lloyd George would require from every designer some proof that he could make, in wood, or brass, or in iron, or

other materials, the things he pretends to make by the aid of others (so turning himself into a wholesale finder-out of forgers), he would be doing real service to every man's trade; and if he would, and could, fine (after sufficiently long warning) all the producers "who really could produce nothing," his praises, instead of being half-hearted and pot-forging things, would be, and would deserve to be, praises high as heaven. For every man worth employment would then, in time, be employed, and those who lived by pretending to be, as in the ending, would be punished for it, as, in the end, they deserve to be, and will be. If any time like that is about to dawn—We may not live to see the day; But earth will blossom in the ray Of the good time coming.—Then, whoever puts himself forward as able to make artistic things will be able to make them. He will not have to hunt over the world for somebody who will help him to make them, nor will this somebody then have to discover a "designer" who will first of all set out on paper his idea of what the thing shall look like when it is made. The real maker, with the materials and tools, will set to work and make it, if it is not too big; or if it is, he will appoint a man, or men, to help him. The maker will design it—being able to do this—and sham designing will be at an end. When the Chancellor of the Exchequer, or some less busy man, can manage as much as this, a new world will be begun; and things will be growing up in it "New, as if brought from other shores; Yet welcome as if loved for years." For this is how things used to go on when the world was a world, and before separate "designers" of work were unfortunately invented.

This, it is clear, would require more men than one to do it. Chancellors of the Exchequer (not necessarily long-tongued ones) might be appointed by the dozen or by the gross, and, to keep the House of Commons going, "dockers" with tongues long enough might be appointed to carry on the debates. But here is what somebody will say: "What has all this to do with 'Pagan pot-boilers'?" and what is a "Pagan pot-boiler," and where can we see one? The reply is that one may be seen, or was to be seen not long ago, in the basement of the Guildhall Museum in the City of London. It was put there when first discovered, not far from the spot in which it was found, in or near the street which now goes by the name of "London-wall." It seems to have been part of one of the City decorations—a triumphal arch or some such thing, erected near the end of the Roman occupation of Britain; so, perhaps, as the mother of Constantine the

Great was a Welsh lady, "pot-boilers" themselves may be claimed as originally a British product. Certainly no British product has fared so well or gone so far. At this moment, "pot-boilers," whether native or not, have gone all over the world, and stand for "Art" "from China to Peru," and especially here. Somebody, in the old artistic ages, made something good and admirable—a portrait, perhaps, of some plant, or bird, or animal—and people admired it and imitated it while its maker was yet above-ground. In course of time, what with revolutions and conquests and other changes, the gloss on its outside went off, and, gloss being all that most people can judge the value of anything by, it went out of fashion and became "a thing of low degree"; it was tossed aside, was broken, was dirtied, and at last was left on the rubbish-heap. Then—after ages, probably—fashions changed again, as they will do if you wait. Then, slowly and with many enemies, the forms that had been most out of fashion become for a while—it may have been for a century, or for many centuries—the forms that were most in fashion for a while. The old ornaments were dug up and mended, cleaned and painted, and one of the rich people through whom Providence, as Pope says, shows its contempt for wealth by making the lowest in intellect the chief possessors of it, built, voluntarily or by popular compulsion, a house to hold it. Then, with what was left of it, it came to be at the top of the fashion again. People thought it wonderful again, and set up fanciful likenesses of the men they supposed had made it and other objects of the same kind; and so, over and over again, the process went on. Now, the odd thing, the unusual thing, about the "Pagan pot-boilers" is to find a "pot-boiler" existing in "Pagan" times at all; for people generally began to produce "pot-boilers" only when they could produce nothing new, and that only happens when their favourite style, whatever it is, has been temporarily worked to extinction. Where the worker is able to invent what is new and good, he usually has the common-sense to do so; but when the manning-man at his elbow, or the committee, which is appointed to be over him, says to him, "You must give us something fresh," or "You must do what is stale at a fresh, cheap price," then he stops inventing the new, and makes cheap and nasty copies of the old. Now this is exactly what our Guildhall Pagan did. Either he could invent nothing new, or he could not get it made at the price.

The "artistic ages" were when everyone who had to make something knew how to make it fresh, beautiful, and also useful. This is what very few men can do at present, for this is an *inartistic* age, when hardly anybody knows how to make any thing fresh, and the stupid world tells him that a bad copy of some thing made for quite a different purpose ought to please everyone, and *does* please everybody while their little lives hold out, which, through the mercy of Heaven, is not very long. Then, in an *inartistic* age, hardly anyone can invent the smallest thing (except useless, or nearly useless, mechanical things), and everyone with any power of drawing rummages out dead and done with old shapes and copies them as well as it can, and says, in its puny attempt at a voice, that these are to be in fashion *now*, and for a little while the world says, "Yes, they shall be in fashion for a little while," and then "Da capo," and their god has had his day, and his fashions are over, for the time. So the world is alternately in these two stages: in the artistic stage, when everyone who has some thing to do has some idea of how to make it beautiful and yet useful, or in the *inartistic* stage, when we can all see what a *boon* it was to be able to make the same things beautiful and useful, and yet when scarcely any of us has sense to make them so. We live by turns in each age, and long in each for the opposite one; but "it cometh not with observation." The Precession of the Equinoxes will bring it back, no doubt; but what insurrections, wars, and revolutions shall come meanwhile, who shall say? And when it comes, we shall not be here to see it. If in the opposite sort of age we can catch but a glimpse of it on the way, we may be very glad; but men, when it comes fully, will not be so very glad; they will be thinking too furiously about cutting each other's throats and stealing each other's purses. It may be, and art and art fashions will have shrunk—perhaps to a very small and far-off-looking thing.

ESTIMATING FOR REINFORCED CONCRETE WORK.—IV.

(All Risks Reserved.)

CONCRETE CAST IN BLOCKS OF PLAIN SECTIONS.

As for plain door and window-heads, lintels over openings, door-sills, quoins, stringcourses, channels, kerbs, etc.

Comprising Portland cement and coarse aggregate broken and double-screened to pass $\frac{1}{2}$ in. but not 3-16 in. mesh, including mixing, wheeling, depositing in position, and well ramming around the reinforcement, including spade finish to surface of concrete (but exclusive of reinforcement, casings, etc.).

Gravel or ballast aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|-------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 1 1/2 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 0 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 1 |

Broken stone aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|-------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 2 1 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 2 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 2 |

Broken granite aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 2 3 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 4 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 4 1/2 |

Extra to preceding items for hoisting over 20ft. in height. For every additional 20ft.

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 0 0 1/2 |

MOULDED CONCRETE BLOCKS.

Concrete cast in moulded blocks, as for cornices, moulded door and window-heads, copings, kneelers, apex blocks, pier-caps,

etc., including not exceeding 20ft. high, and finishing in position in cement mortar, in dividing all moulds and patterns complete as previously described. Concrete blocks measured net.

Gravel or ballast aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 2 3 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 3 1/2 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 4 1/2 |

Broken stone aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 2 4 1/2 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 5 1/2 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 6 1/2 |

Broken granite aggregate (30s., 6s. 6d., 16s. 6d.).

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 2 7 |
| 1 to 4 1/4 : 1 1/4 : 3/4 | 2 7 1/2 |
| 1 to 3 1/4 : 1 1/4 : 3/4 | 2 8 1/2 |

Extra to preceding items for hoisting over 20ft. in height. For every additional 20ft.

| Per ft. cube. | s. d. |
|--------------------------|---------|
| 1 to 5 1/4 : 1 1/4 : 3/4 | 0 0 1/2 |

NOTE.—The cost of cast or moulded concrete blocks per foot cube depends largely on the cost of labour and the proportional cost of the necessary moulds, etc. The foregoing prices for concrete blocks are all based on the same rates for labour and moulds, the difference in price being occasioned by the difference in the proportions and materials used for the concrete. It will be seen that the saving effected by the use of a poorer description of concrete is very slight.

ORDINARY CEMENT CONCRETE IN EXTERNAL PAVINGS, ETC.

Comprising Portland cement, sand, and coarse aggregate, broken and double-screened to pass $\frac{1}{2}$ in. but not 3-16 in. mesh, including mixing, wheeling, depositing in position, and well ramming. Laid to falls, but exclusive of finished surface.

Gravel or ballast aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 2 | 3 2 |
| " 1 to 5 (1:2:3) | 2 3 | 3 3 |
| " 1 to 4 (1:2:2) | 2 4 | 3 4 |
| " 1 to 3 (1:1:2) | 2 5 | 3 7 |

Broken brick aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 3 | 3 4 |
| " 1 to 5 (1:2:3) | 3 4 | 3 5 |
| " 1 to 4 (1:2:2) | 3 5 | 3 7 |
| " 1 to 3 (1:1:2) | 3 7 | 3 9 |

Broken stone aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 8 | 3 10 |
| " 1 to 5 (1:2:3) | 2 9 | 3 11 |
| " 1 to 4 (1:2:2) | 2 9 | 4 1 |
| " 1 to 3 (1:1:2) | 2 10 | 4 3 |

Broken granite aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 5 | 4 11 |
| " 1 to 5 (1:2:3) | 3 5 | 5 1 |
| " 1 to 4 (1:2:2) | 3 6 | 5 2 |
| " 1 to 3 (1:1:2) | 3 7 | 5 4 |

CONCRETE FOR REINFORCED FLOOR-SLABS, ETC.

Comprising Portland cement, sand, and coarse aggregate broken and double-screened to pass $\frac{1}{2}$ in. but not 3-16 in. mesh, including mixing, wheeling, raising or lowering, not exceeding 20ft., depositing in position, and well ramming around the reinforcement, including spade finish to surface of concrete (but exclusive of reinforcement, casings, etc.).

Gravel or ballast aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 7 | 3 9 |
| " 1 to 5 (1:2:3) | 2 8 | 4 0 |
| " 1 to 4 (1:2:2) | 2 9 | 4 1 |
| " 1 to 3 (1:1:2) | 2 10 | 4 2 |

Broken brick aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 8 | 3 11 |
| " 1 to 5 (1:2:3) | 2 9 | 4 1 |
| " 1 to 4 (1:2:2) | 2 10 | 4 2 |
| " 1 to 3 (1:1:2) | 2 11 | 4 3 |

Broken stone aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 9 | 4 1 |
| " 1 to 5 (1:2:3) | 2 10 | 4 2 |
| " 1 to 4 (1:2:2) | 2 11 | 4 3 |
| " 1 to 3 (1:1:2) | 2 12 | 4 4 |

Broken granite aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 0 | 4 5 |
| " 1 to 5 (1:2:3) | 3 1 | 4 6 |
| " 1 to 4 (1:2:2) | 3 2 | 4 7 |
| " 1 to 3 (1:1:2) | 3 3 | 4 8 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 1 | 4 6 |
| " 1 to 5 (1:2:3) | 3 2 | 4 7 |
| " 1 to 4 (1:2:2) | 3 3 | 4 8 |
| " 1 to 3 (1:1:2) | 3 4 | 4 9 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 2 | 4 7 |
| " 1 to 5 (1:2:3) | 3 3 | 4 8 |
| " 1 to 4 (1:2:2) | 3 4 | 4 9 |
| " 1 to 3 (1:1:2) | 3 5 | 4 10 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 3 | 4 8 |
| " 1 to 5 (1:2:3) | 3 4 | 4 9 |
| " 1 to 4 (1:2:2) | 3 5 | 4 10 |
| " 1 to 3 (1:1:2) | 3 6 | 4 11 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 4 | 4 9 |
| " 1 to 5 (1:2:3) | 3 5 | 4 10 |
| " 1 to 4 (1:2:2) | 3 6 | 4 11 |
| " 1 to 3 (1:1:2) | 3 7 | 4 12 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 5 | 4 10 |
| " 1 to 5 (1:2:3) | 3 6 | 4 11 |
| " 1 to 4 (1:2:2) | 3 7 | 4 12 |
| " 1 to 3 (1:1:2) | 3 8 | 4 13 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 3 6 | 4 11 |
| " 1 to 5 (1:2:3) | 3 7 | 4 12 |
| " 1 to 4 (1:2:2) | 3 8 | 4 13 |
| " 1 to 3 (1:1:2) | 3 9 | 4 14 |

CONCRETE FOR REINFORCED WALLS, PARTITIONS.

Comprising Portland cement, sand, and coarse aggregate broken and double-screened to pass $\frac{1}{2}$ in. but not 3-16 in. mesh, including mixing, wheeling, raising or lowering, not exceeding 20ft., depositing in position, and well ramming around the reinforcement (but exclusive of reinforcement, casings, etc.).

Gravel or ballast aggregate (30s., 6s. 6d., 16s. 6d.).

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 8 | 3 10 |
| " 1 to 5 (1:2:3) | 2 9 | 4 0 |
| " 1 to 4 (1:2:2) | 2 10 | 4 1 |
| " 1 to 3 (1:1:2) | 2 11 | 4 2 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 9 | 4 1 |
| " 1 to 5 (1:2:3) | 2 10 | 4 2 |
| " 1 to 4 (1:2:2) | 2 11 | 4 3 |
| " 1 to 3 (1:1:2) | 2 12 | 4 4 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 10 | 4 2 |
| " 1 to 5 (1:2:3) | 2 11 | 4 3 |
| " 1 to 4 (1:2:2) | 2 12 | 4 4 |
| " 1 to 3 (1:1:2) | 2 13 | 4 5 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 11 | 4 3 |
| " 1 to 5 (1:2:3) | 2 12 | 4 4 |
| " 1 to 4 (1:2:2) | 2 13 | 4 5 |
| " 1 to 3 (1:1:2) | 2 14 | 4 6 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 12 | 4 4 |
| " 1 to 5 (1:2:3) | 2 13 | 4 5 |
| " 1 to 4 (1:2:2) | 2 14 | 4 6 |
| " 1 to 3 (1:1:2) | 2 15 | 4 7 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 13 | 4 5 |
| " 1 to 5 (1:2:3) | 2 14 | 4 6 |
| " 1 to 4 (1:2:2) | 2 15 | 4 7 |
| " 1 to 3 (1:1:2) | 2 16 | 4 8 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 14 | 4 6 |
| " 1 to 5 (1:2:3) | 2 15 | 4 7 |
| " 1 to 4 (1:2:2) | 2 16 | 4 8 |
| " 1 to 3 (1:1:2) | 2 17 | 4 9 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 15 | 4 7 |
| " 1 to 5 (1:2:3) | 2 16 | 4 8 |
| " 1 to 4 (1:2:2) | 2 17 | 4 9 |
| " 1 to 3 (1:1:2) | 2 18 | 4 10 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 16 | 4 8 |
| " 1 to 5 (1:2:3) | 2 17 | 4 9 |
| " 1 to 4 (1:2:2) | 2 18 | 4 10 |
| " 1 to 3 (1:1:2) | 2 19 | 4 11 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 17 | 4 9 |
| " 1 to 5 (1:2:3) | 2 18 | 4 10 |
| " 1 to 4 (1:2:2) | 2 19 | 4 11 |
| " 1 to 3 (1:1:2) | 2 20 | 4 12 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 18 | 4 10 |
| " 1 to 5 (1:2:3) | 2 19 | 4 11 |
| " 1 to 4 (1:2:2) | 2 20 | 4 12 |
| " 1 to 3 (1:1:2) | 2 21 | 4 13 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 19 | 4 11 |
| " 1 to 5 (1:2:3) | 2 20 | 4 12 |
| " 1 to 4 (1:2:2) | 2 21 | 4 13 |
| " 1 to 3 (1:1:2) | 2 22 | 4 14 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 20 | 4 12 |
| " 1 to 5 (1:2:3) | 2 21 | 4 13 |
| " 1 to 4 (1:2:2) | 2 22 | 4 14 |
| " 1 to 3 (1:1:2) | 2 23 | 4 15 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 21 | 4 13 |
| " 1 to 5 (1:2:3) | 2 22 | 4 14 |
| " 1 to 4 (1:2:2) | 2 23 | 4 15 |
| " 1 to 3 (1:1:2) | 2 24 | 4 16 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 22 | 4 14 |
| " 1 to 5 (1:2:3) | 2 23 | 4 15 |
| " 1 to 4 (1:2:2) | 2 24 | 4 16 |
| " 1 to 3 (1:1:2) | 2 25 | 4 17 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 23 | 4 15 |
| " 1 to 5 (1:2:3) | 2 24 | 4 16 |
| " 1 to 4 (1:2:2) | 2 25 | 4 17 |
| " 1 to 3 (1:1:2) | 2 26 | 4 18 |

Concrete 1 to 6 (1:2:4)

| Per yd. super. | 4 in. thick. | 6 in. thick. |
|-------------------------|--------------|--------------|
| Concrete 1 to 6 (1:2:4) | 2 24 | 4 16 |
| " 1 to 5 (1: | | |

"referring back" to the Council's recommendation.

It will be remembered that the Council's recommendation was—

Resolved—That the Agreement proposed to be made between the Royal Institute and the Society of Architects and which is now submitted to this Meeting be and the same is hereby approved and that the President be authorised to sign the same on behalf of the Royal Institute And that after the same shall have been signed by both parties the Council do proceed to carry the same into effect and do present a Petition to His Majesty's Privy Council praying for the grant of a Supplemental Charter by By-laws that shall set out the terms and conditions of the said Agreement as now approved.

The President first read the notice convening the meeting, and went on to say that it was in no way the wish of the Council to hurry the consideration of this matter, nor to press the meeting to pass the resolution to be proposed that evening. If members considered that it would be detrimental to the Institute to give effect to the Council's proposal, it was open to the meeting to adopt or reject them, as they thought fit. A year ago he might have attempted to persuade members to accept these proposals, but any little ambition he had then in regard to this matter had now, perhaps, passed away. His only ambition at the moment was to conduct the present meeting fairly, and it would be his earnest endeavour to do so. But, as it would probably be a difficult meeting to conduct, he appealed to their generosity to assist him in the matter. Strictly speaking, with regard to the First Schedule, the Council were advised that that had already been passed by the Institute, and was, therefore, unalterable, though it might be rescinded. But the Council thought it would be well not to let the matter rest on the legal aspects of the matter. If, therefore, it was considered advisable to alter that schedule, he, as chairman, would offer no opposition. The President then asked Mr. Gibson to propose the resolution.

Mr. J. S. Gibson (F.) having formally read the resolution, said that probably all present had read the notice which had been printed and read out the other day for the purpose of giving before members the policy of the Institute, which was now of some years' standing. We go back, he said, to 1906, when we first got some definite line of policy outlined, and which the Institute then determined should be followed. It was necessary that the vague feeling in connection with Registration should at some time be crystallised, and towards 1906 and 1907 it became feasible to lay these aspirations or ideals into the form of certain definite proposals. These proposals were put before members in March, 1907, and as it is possible that some present might not, in conjunction with the document now before them, have read the resolutions passed at that time, it would perhaps be as well to refresh their memories with those points which are really applicable to the present business. In March, 1907, the following resolutions were approved: "That the Institute should endeavour to obtain Parliamentary recognition of its membership; that it be made compulsory after, say, 1912, that all architects, before receiving the diploma of membership of the Institute, must have passed through a definite course of architectural education; that a temporary class of Licentiates of the R.I.B.A. should be established; that in future Fellows be elected from the class of Associates, and by the Council in special cases; that disciplinary powers of the Institute should be increased, with power of appeal." And as regards the application to Parliament for an Act, the following were suggested as the essential points which endure and should be made to attain: To declare that it is in the public interest, to enable the public to distinguish architects recognised as qualified by a competent authority from those not so recognised; to extend the present chartered privileges of the R.I.B.A., making it the status and authority for the education and examination of architects for admission to the Institute; and to legalise a Scale of Charges. And there also followed a proposition, which was negatived at that meeting, to require public bodies to employ a professional member of the R.I.B.A. These

are the chief heads upon which the policy of the Institute was based at that period, and these heads were elaborated by the general body first, and then by the Council, and committees were afterwards appointed to consider means of carrying that policy into effect. From that day till now the necessary steps have been taken, one after another, to give effect to that policy. It is common knowledge to all that a Supplemental Charter was obtained. By-laws were approved by the body first, and then the class of Licentiate was opened. That class has exceeded the utmost expectations of all who had anything to do with the initiation of this movement. The numbers at the present time are close upon 2,000, from all parts of the country, and the class of men who have come into the Institute is such that we may be quite satisfied with. After the policy of the Institute had thus far been put into operation, it became evident at an early stage that if anything was to be done by the Institute in the matter of a Registration Bill or a Bill for the Statutory Qualification of Architects, it would be necessary to take into account the fact that another Society in London, formed some twenty-seven years ago for the specific purpose of bringing about the Registration of Architects, would have to be reckoned with. It was therefore thought desirable by the Council of the Institute that we should get into communication with that body as soon as possible, with the view of ascertaining whether there was any path which would lead to the desired end of both bodies, which would remove the friction that might exist between the two societies, and which would commend itself to the members of both. In this regard, the members of the Society of Architects, and the members of the Society of Architects. The result of this conference and these deliberations is laid before you to-night in the form of the Schedules and the Agreement now proposed. The Agreement and the draft Supplemental Charter now before you may be taken to be merely summaries of the First and Second Schedules, which form part of the same. It is to be observed that the members have been very briefly to the Agreement, and to deal more in detail with the First and Second Schedules. There is very little to be said on the clauses of the Agreement; they are all perfectly clear, and practically explain themselves. With regard to clause 5, sub-section (b), which states that "the assets of the Society shall be applied in payment of the debts and liabilities and the expenses of its winding-up and dissolution, and any surplus shall be applied in accordance with its Articles of Association, and if there shall be a deficiency the Royal Institute shall make good such deficiency," members may be sure that the Council of the Institute did not draw up such a clause as that without taking proper steps, by means of its accountants, to ascertain that that liability is practically non-existent, as far as any present liability is concerned. The Second Schedule deals with the conditions on which the Society of Architects is proposed to be dealt with in admitting its members into the various classes of membership of the Institute. Taking these in detail, and beginning with clause 84 of the proposed By-laws, you will find it is proposed that a certain proportion of the Society of Architects, the whole of the Society being close on 1,000 members—that a certain proportion of these members, not exceeding 100, are to be admitted into the Fellowship of the Institute on the terms therein set forth. This clause deals entirely with men who have been established for a long period in the profession of architecture, who have carried on reputable practices, and the Council of the Institute felt that it was better to throw the onus of making all the necessary investigations into the conduct and standing of these men on the Council of the Society of Architects, rather than take over that responsibility, because the Council of the Society of Architects are in a better position to judge and form an opinion upon the character and standing of their members than they could ever hope to do. But it is hedged round with the necessity of getting a certain majority of votes, which, I think, will safeguard the Institute, as far as its membership is concerned. In By-law 85 we

deal with a second class of members, the members of the Society who at the date of the Supplemental Charter have attained the age of thirty years, and have for the seven years immediately preceding that date been engaged as principals in the practice of architecture; it is proposed, subject to their making the necessary declarations, which you will find printed, that they shall be admitted at once as Licentiates of the Institute; and they shall, if they are eligible for the reason of their practice and their age, immediately be elevated from the Licentiate rank into the Fellowship rank of the Institute by passing a special examination. Then we come to clause 86, which deals with those members of the Society of Architects who have attained the age of thirty years. They will become Licentiates of the Institute. There are also in the Society of Architects a comparatively small number of men who have not yet attained the age of thirty years, and therefore it was impossible for them to become Licentiates, as they were under the age-limit provided by the Supplemental Charter now existing, and some provision had to be made for them, so that when they did attain the age of thirty years they might be admitted into the ranks of Licentiates. And that is safeguarded towards the end of clause 87, by a proviso dealing with any person against whom a charge, felony or any other charge may be made between the interval of his being twenty-eight years of age and his admission into the Licentiate rank. There is also another provision in By-law 88 which deals with a certain number of members of the Society of Architects—not a large number: I think between twenty and thirty—who have taken part in certain examinations of the Society, which are held to be equivalent to the examinations for the Associateship of the Institute; and it is proposed that these men should be exempt from those particular subjects, and that a special examination in design only should be set up for them, and if they successfully passed that examination they would be taken as eligible for election into the Associateship, and take rank with the Licentiates of the Institute. There are also some students whom it is necessary to take over on pretty equal terms to those of our own Students. They do not total a great many; but, as we are dealing with a Society of such a large membership as that now under consideration, it was necessary not only to take in their full numbers, but to take in all those who had any right to be taken into the educational system with them. I do not think you will take any exception to the fact that these latter men are to be taken in on the lines suggested. Practically, the proposal, as briefly as I can state it, is this: that in consideration of our taking over the whole of the members of the Society of Architects on the terms outlined, and only on such terms, and admitting them as members of this Institute, which is a very great benefit to us, but we get rid of the opposition which that Society would naturally bring to bear as a body formed for the purpose of carrying through the Registration movement. They have been very frank, and they have stated that if this Institute will really take up the movement of Registration, and will propose a Bill to Parliament to secure the statutory qualification of architects, they will be only too glad to come within the walls of this Institute and to help us in every possible way. And I think it is entirely in that spirit that we must approach them, and in which we must carry out these negotiations. They are giving up their individual existence, they are in a position to give everything for which the Society was constituted; they are not getting, probably, everything from us which they thought they might get—very few of us do get everything we think we ought to get in this world; but, at any rate, we have tried in these negotiations to find some means which would satisfy them, and which would at the same time place the Institute in a position to approach Parliament with a reasonable chance of carrying this scheme still further forward. It is not necessary for me to go into detail over the remaining portions of these By-laws; they are largely legal provisions—and provisions of necessity.

according to our solicitors' advice—which do not touch the principle underlying those portions that I have already dealt with. Until we come to By-law 93, sub-section (d), there is not much to be said. It is proposed by By-law 93 that there shall be a Committee of the Institute for the promotion of the Registration of Architects and for the consideration of all legislation affecting the Registration of Architects. In clause (b) it says, "Such Committee shall consist of sixteen members of the Royal Institute, of whom ten shall be persons who at the date of the Supplemental Charter were not members of the Society, and six shall be persons who at that date were members of the Society." The purpose of this clause was to give them a reasonable amount of representation on the Committee, so as to carry this work forward. And it is suggested that instead of the wording here adopted, it would be better to say ten members of the Institute, of whom eight are Fellows and two are Associates, so that the Associates should be represented on this Committee. There is, I think, nothing in either of them. You will think of By-laws which call for comment, though I shall be very glad to give any further explanation needed. It is manifest that there must be a certain amount of opposition to any scheme of this kind; that is inevitable. You cannot expect an Institute, with a membership as great as ours, not to have within its walls members who think, or fancy, or imagine that they have certain grievances in carrying through such a great scheme as this. And one purpose of this meeting is to allow you to ventilate these grievances as much as possible, and I am perfectly certain that the Council will give every consideration to what you have to say. But it must be borne in mind that this is not a question of any personal predilection at all; it is a question of policy, and whether you, as individuals, take exception to any particular part of it, to any particular By-law or paragraph, I think you would be quite wrong to let your predilections or your prejudices override a great policy. We ought to look upon this from the point of view that we are members of an Institute which is going to last very much longer than we as individuals will last; and whenever a movement like this is instituted, you will find that the justness will be done to members, both old and young; it is inevitable it should be so. But the sooner you carry through a movement like this the sooner will all these injustices be relegated to the background, and in a very short time all these will have been forgotten; the Institute will have been very much strengthened, its work will be much more effective, and the reasons for its existence will be justified in the looking after the interests of architecture and of architects. It is, I think, unnecessary for me to tell you that it is surely very much better that all the architects of this country should be under the government of one head, rather than under two diverse heads. It would require very little argument to convince anybody that instead of working along lines that are diverse, all the architects of this country should work along lines which are not only parallel, but lines which are one, and it is only by giving away a detail which we ourselves might take some exception to that we can hope to bring two important bodies together and achieve such a result. We must not imagine for a moment that the Society of Architects has chosen to put up with anything merely for our sakes, and we certainly must not approach them in that spirit. It ought to be the last thing we should do to make any sort of personal references, as to status, etc.; we ought to conduct this discussion on the lines that it is a movement from which the personal element must be entirely eliminated. Having finished with the Second Schedule, I should like to wait for a moment to say a few words on the Bill, and then to discuss the First Schedule really contains the principles of the draft Bill which it is proposed to lay before Parliament as soon as possible. Do not, however, run away with the idea that this is the Bill. The Bill, of course, will have to be drawn very carefully; all its provisions must be very carefully considered,

I dare say by a Committee appointed for that purpose. Only the governing principles of the Bill are set out in the paper before you, and it is for the members of this Institute to determine those governing principles. If you wish them amended, let us know in what direction you would like them amended, and then, if they are altered, extended, or curtailed, it is for you to let us know as clearly as you can your mind upon the subject. Afterwards, I have no doubt, a Bill will be presented to you in detail, and you will have the same opportunity of discussing it in detail. Frankly, the Bill now before you goes considerably further than the resolution passed at the meeting in March, 1907, which I read in opening my remarks. And if you compare the two resolutions you will see that the reason why this Bill goes further is twofold. In the first place, some attempt was made to draft the heads of a Bill, the principles of a Bill, but up to the present no attempt whatever has been made to draft the Bill itself. Some time ago it was attempted to draft the heads of a Bill to carry the intention of March, 1907, but we were assured by solicitors that it was a practical impossibility to draft a Bill upon these resolutions; they were altogether too nebulous. Anything which it was proposed to achieve by means of a Bill containing only the provisions which I have read to you to-night could perfectly easily be obtained by means of our own By-laws, without going to the trouble of promoting a Bill in Parliament to obtain them. A man who has done some little work in the way of Registration during the last five or six years, I claim to be at least a consistent Registrationist since I took the movement up. If I understood anything at all of the debates which have taken place in this Institute, it has been that the members of the Institute did want a real Registration Bill; they did not want some nebulous shadowy kind of thing which would govern nobody, which would do us no good. What they meant by Registration, I always understood, was that we should promote such a Bill as would practically enable us to control the whole of the architects in this country. And it was evident at a fairly early stage that the only practical method of obtaining that was in some such form as in the Bill that I now propose. I read it briefly, and I have gone through it. You will see, on page 3, clause 1, of the draft Bill that the Architectural Registration Authority shall be and mean the Council of the Royal Institute of British Architects, with the addition of nominees of the Privy Council. We do not know what members the Privy Council might desire to put on the Registration Authority, but you must take care from the very beginning that the real governing authority, having control of the architects of this country, is the Council of the Royal Institute of British Architects. And it has required some considerable persuasion to bring the Society of Architects to that point of view. But there it is to-day, and I think we have got a long way towards establishing the Institute in the position which we ought to be in in relation to architects and architecture. The second clause, you will find, defines the term Architect, and it defines it so that an architect shall be a member of one or other of the classes of the Institute, or he shall be a member of any of the Royal Academies of Arts. In the third clause you will note that every architect in the United Kingdom, Colonies, or Dominions shall be entitled to continue his work under the Registration, of course, to his being eligible by qualification. I draw your attention to the fact that this is not a compulsory Bill; it is a Bill in which the practising architect shall be entitled to be enrolled. But if a practising architect desires to remain outside the Institute, no compulsion will be placed upon him to become enrolled; he will be at liberty to continue his work under the Registration, but he will not be at liberty to sell or otherwise dispose of his connection to an unqualified architect. He will be at liberty to continue his practice until he either relinquishes it or dies, the object being not to enroll all architects who have a vested interest in the practice of architecture, but only to enroll those who

desire to become members of the Institute, and who see that it is to their interest that they should become members of the Institute. You will find in clause 4 that there is a time-limit; after 1920, or some time which it is politic to decide, no person shall be permitted to practise for hire or reward in designing a building unless he is an architect within the definition of this Act, which practically means that during the course of a few years every man who wishes to practise architecture in these dominions must of necessity be a member of this Institute, because it would not pay him to remain outside the Institute; it would be impossible for him to recover his fees in a Court of Law; he would have no standing whatever in the profession, and of necessity he would naturally come into the Institute. In clause 5 there is an exception made for architects who are salaried officials, and it also states that the Schedule of the Institute shall be taken to be the standard scale for the remuneration of architects. In clause 6 we have it stated that any public body or authority spending money in carrying out the funds for carrying out building having a frontage to a public road shall employ an architect within the meaning of the Act. That, in another form, is practically achieving the same end as paragraph (i) in the resolution of March, 1907, which was deleted—that is, to require public bodies to employ a professional member of the R.I.B.A. In clause 7 you have the collaboration of the architect and the engineer in carrying out such bridges, railways, and so on; and in clause 8 you have a governing clause, without which it would be hopeless to expect any Parliament to give you an Act—viz., "Nothing contained in this Act shall apply to the prejudice of any person who, previous to the passing of this Act, shall have been engaged in practice in designing or superintending buildings." That proviso is, of course, inevitable. These, briefly, are the provisions of the suggested Bill. It is possible that many members of the Institute may have ideas which would better these proposals, or would modify them in a way which they think would be better. I think it is open to this meeting to listen to these, and I am perfectly certain we shall give them every consideration. It is also possible—in fact, it is very probable, being a human nature as we are, do that we shall have opposition to the first portion of the proposals of the Council as well as to the second, and it is common knowledge to us all that other proposals of various kinds have already been talked about. There have been alternatives suggested, such as making the Society of Architects an Allied Society of the Institute; but the gentlemen who proposed that have not taken into account some important facts. The fact is, our allied societies at the present time cover practically the whole of England, Scotland, Ireland, and Wales. The Society of Architects has a membership which also covers to a very great extent the same territory. If we allied the Society of Architects, they would have a certain number of members in the same territory who are not members of the existing allied societies. It would get no further forward in any matter of Registration; it would complicate and confuse the whole issue, and when you went to Parliament with a Bill, you would be compelled to take in the Society of Architects, and on probably much worse terms than you can arrange to-day. Then it has been said that we should not go in for any scheme of this kind, but that we should presently certain we are going to get an Act. I quite agree that there is a good deal to be said for that. Probably those gentlemen who advance that proposition are under the impression that we shall never get the Act, and that it would be an impolitic thing for this Institute to—shall I say?—saddle itself with an additional membership of a thousand members. In that case, how can they by doing so, themselves, would therefore listen to us with more respect and grant our request. They probably think that, at any rate, if we never get this Act we need never amalgamate. But I think a little reflection will show you that the only possible way you can carry this through is the way in which you started when you decided prac-

tically to incorporate in this Institute all the architects of Great Britain, by instituting a new class. And I think it would be a disastrous step to turn your back upon that and to try now, at this late hour, to say because you will not make a special bargain with these men that you are going to throw all your work away, that you are going really to render the whole of your efforts of very little worth, because you have to give up, shall I say, certain of your privileges to obtain their co-operation and support. That, I think, would be an extremely unwise proceeding, and I am perfectly certain that the gentlemen who are so cautious that they will not go forward with any step of amalgamation until they are perfectly sure that they are going to get a Registration Act from Parliament are very likely to be the gentlemen who will fall between two stools. No doubt there are many other forms of opposition to the proposals which the Council have put before you, but I will not take up any more of your time. As far as I possibly can I have tried to put as clearly before you as I am able the proposals of the Council, so that there will be no ambiguity in discussing it. And if anything that I have said in any way offends the susceptibilities of any member, I am extremely sorry, because I think we are here to discuss the matter in the most friendly way possible. If it is not the slightest good to me in any way, I think if we have to find a way out, let us find a way out with good humour. That will carry us over difficult country easier than anything else.

Mr. A. Needham Wilson (A.): I think it is only right and proper that these proposals, having been moved by a Fellow, should be seconded by an Associate, because the affected parties are the Associates of the Institute. But I must confess, in rising to second this, that I feel very deeply my sense of responsibility; partly because I do not claim to possess the eloquent language of my friend Mr. Gibson, nor do I feel that I have the grip of the subject that he has. But I feel my responsibility for a very much graver reason. It has been my privilege for some years to be associated with the Council. And as such, and in doing my duty, I feel that it has been incumbent upon me above everything else to watch over the interests of the Associates, as far as in me lay. I have endeavoured, to the best of my ability, to carry out that policy which I feel has been put upon me. Now, Sir, as Mr. Gibson has said, it is common knowledge that a great many of my brother Associates are opposing the proposals which are before us to-night, and that is where I feel my great responsibility, as one of their representatives on the Council, in rising to second this resolution. It has been my duty, as well as my privilege, to be behind the scenes, to a very large extent, in all these tangled and complicated negotiations which have brought us up to the present stage, and I venture to think it is only those who are behind the scenes who have the smallest conception of the difficulties and obstacles which have had to be met and surmounted. Therefore I have every confidence in seconding these proposals, because I honestly feel that the Council have arrived at the only possible solution under the existing circumstances. I am bound to say that, so far as the opposition of my brother Associates is an honest opposition, inasmuch as they may feel, and honestly feel, that their interests are likely to be imperilled, I confess I have every amount of sympathy with that view. And it is for this reason: the Associates have arrived at their position by dint of having to pass through a very severe examination. It is an extremely honourable position; it is a position that should not be assailed in any way. If I felt that the proposals of the Council menaced the position of the Associates, I say, honestly and straightforwardly, that I should have been one of the first to oppose them with the full strength that I possess. But I do not feel that the position of the Associates is menaced. Now, Sir, I think that some of the opposition arises from a certain amount of misinformation, while some of it arises from an entirely different cause. And that is—one must confess it—

that there is a certain amount of mistrust of the Council existing among the Associates. ("No, no.") I am glad to hear those noes, but at the same time I know that it exists, and should like to assure those gentlemen that the mistrust of the Council is entirely wrong. There seems to be an impression in many quarters that the Council are a collection of malevolent men—"No, no, no"—men whose sole aim and object—"No, no, no"—is to trample the interests of the Associates under their feet. ("No, no, no.") Well, after the disclaimers which have issued from various parts of the room, I need not pursue that subject, but I should like to say that if that impression exists, it is entirely erroneous. Now, Sir, briefly, the Council, I take it, have a mandate. I think they have been doing their best to carry out that mandate. In doing so they have had to sweep away many obstacles. Obstacles are not swept away unless we can arrive at certain compromises. You have to compromise, whether you are dealing with a party-wall dispute or whether you are dealing with matters of this kind; and you cannot compromise unless each side is prepared to give up something. I have had to ask myself, in supporting these proposals, certain questions as affecting Associates. One was: are we Associates called upon to pay too high a price for the mining object? I have no view? I think they are called upon to give up something. It is not to be measured against the ultimate good to the profession in general. It has been suggested to me that it would be a better policy if the matter were delayed. I cannot see the least object in delay, because I think if we are to take action in the matter, now is the time to strike, because we are not much liked by the public at the present moment. Further, I would remind those gentlemen who suggest delay that they have hampered the Council in taking such a course, because I think it would mean keeping open the class of Licentiates indefinitely. The Council in their wisdom recently extended the period for electing Licentiates, and got into serious hot water for so doing. I think those gentlemen who make that proposal are on the horns of a very serious dilemma. Another suggestion which has been made is that the whole of these proposals are subversive of the dignity of the Royal Institute. I cannot see it. I see no dignity whatever in standing idle with my hands in my pockets, waiting for the disabilities which hedge us round and interfere with our practice to disappear of themselves, and wait for the good to come forward to us. I want those disabilities to be swept away, not only for my own sake, but for the sake of posterity. In conclusion, I should like to make, if I may be allowed to, an appeal to my brother Associates. They want to criticise, and criticism is welcome. I, as an Associate, can assure you that genuine criticism, genuine alternatives honestly put forward, will receive the most sympathetic consideration. It is wrong to think that the Council will not listen to the Associates, and that they do not want to. I should like to take this opportunity of expressing my great appreciation to the Council for all the kindness I have received and the sympathetic consideration I have always had when I have advanced matters affecting Associates. And I would ask the Associates not to criticise this important matter in any spirit of factious opposition. If we are to have criticism, may I beg for it to be honest criticism? For I am perfectly sure the Council will consider it sympathetically, having in view what I am sure we all have, and that is the ultimate wellbeing of the profession.

Mr. C. Stanley Peach (F.): After the lucid explanation of this Agreement which has been put to the meeting by the proposer and seconder, I feel it is not necessary for me to say very much before introducing the amendment which I feel bound to move. I have to propose, Sir, that this Agreement be referred back for further consideration. In the ordinary way, when a matter comes from the Council for the consideration and the approval of the general body of members, it comes with the full force of the Council. As a rule, there have been steps leading up to it which have clearly indicated the feelings

of the general body of members. Now, Sir, in the present case the general mandate is for Registration. But on procedure there has not been a general mandate. The Agreement, as it now comes before us, contains what the general body of members regard as objectionable features. We do not consider them objectionable from any petty point of view of grievance, but on the broad principle that the Agreement as it stands is one which this Institute ought not to enter into. In the first place, we think that the inclusion of the full text—because it comes to that—of a Bill to be presented to Parliament in an Agreement of this kind is a very serious objection. There can be no question but that this Bill before it becomes law will receive considerable modification from time to time, and negotiations will have to take place concerning it. As it is made a consideration in the Agreement between this Institute and the Society of Architects the consent of both parties to any alteration is necessary. If from any cause there is a difficulty, then the arbitration clause of this Agreement will come into operation. And we consider that that is not a matter which should go to arbitration. It is a very difficult thing, when a Bill is under consideration, to have an arbitration concerning it, and, therefore, we think that the Bill should be excluded from this Agreement altogether, and that the most this Agreement should contain is a definite understanding that a Bill for Registration should be presented to Parliament by this Institute at an early date. That is our first objection. The next point that seems to affect the whole body of members is the fact that by this Agreement a new class, a privileged class, will be introduced into the ranks of this Institute, the Fellows, Associates, Licentiates. That is to say, persons recommended by the Society of Architects will become entitled to be members of this Institute; and if from any cause our Council should object to them, they will have the right of an appeal from the decision of our Council. That is a privilege which we, the general body of members, do not think should be granted, and which is very objectionable that the Society of Architects should be entitled to come into this Institute in a way which cannot be extended to our allied societies, allied societies which have consistently supported Registration and the Institute right through. There are many other points which will be dealt with by other speakers, but I deprecate very strongly the idea that opposition is raised on the lines that we have no confidence in our Council. That is not the case. In the strongly underlined reference and invitation to full discussion the Council are putting the responsibility for saying aye or nay to this Agreement on the general body of members. They give us the fullest information concerning it, and details which enable us to form our own judgment, and we are to establish our own responsibility rests upon us. And if we should now a precedent for this method of negotiation, that precedent will be a very dangerous one when we have to meet the very real and very serious opposition which Registration yet has to encounter. What is this opposition and this rivalry of the Society of Architects? It will appear in the Parliamentary Committee. Of the one hand you have this Institute. We know what this Institute is; we have Royal Charters; we are the advisers of the King in the award of the most valued architectural honour in this country; we have wide examining powers; we have a strong financial position; and we have a very large membership numbering over four thousand, and they would stand no better chance than any of the numerous societies which are allied to us. But there is other opposition which we have to encounter; and if we start by revolutionising our constitution in order to carry out an Agreement with a comparatively

small number of people, how shall we further revolutionise when it comes to dealing with the powerful opposition of other societies or public bodies? The Bill which here appears is one which, much as I should like to see it pass, I do not think will ever be passed in this form. It will require extensive modification, and that is the time when we may have to consider what alterations of our constitution, or of our Charter even, are required, but not now. Therefore I have to propose as an amendment that this Agreement be referred back for that further consideration which the very important character of the subject requires.

Mr. Herbert Shepherd (A.): On rising to second the motion of Mr. Stanley Peach, permit me to say that I feel my responsibilities very greatly. This is the first occasion upon which I have had the honour to voice the views of other members as well as my own, and I therefore ask this meeting's indulgent acceptance. I would like also, with your permission, to read rather than to chance remembering my points. At the outset I think it should be made perfectly clear that whilst we are opposed in principle to the suggested agreement between ourselves and the Society of Architects, and are going to vote against the resolution of the Council which is before the meeting, we in no way give place to anyone in our respect and esteem, first to you, Sir, as our President, and, secondly, to the members of the Council whom we have helped to elect to the offices which they enjoy. Believe me, gentlemen, this is not common lip-service, but a genuine expression of our sentiments. For my own part, I fear that at times this Institute asks too much of its officers, and I feel sure that each one of us deeply regrets that your own health, Sir, should be so heavily taxed by the arduous services and laborious duties imposed upon you. At the same time I would ask that we shall be credited with being actuated by proper motives in our action in this matter, feeling as we do that this resolution is fraught with grave danger to the best interests of the Institute. I hope it will be admitted that all that whatever has been done was with the best of intentions and all honesty of purpose. But, turning to the last paragraph on this paper, at the end of such a self-damaging statement as is there set out, one cannot help feeling that the Council are likely to compete very closely with our most Gracious Patron's Judges, both for innocence of affairs and unconscious humour. Let us turn back to clause 5, sub-section (c) of the Statement of Policy on the preceding page. I think the clause that there should be added the words: "For one year after obtaining the By-Laws." That was the definite principle laid down by the general body. It would never have been possible to have adopted that proposal "unanimously" if members had been aware that there was to be inserted afterwards in the Charter a clause which had never received the sanction of the general body. I feel that we are in some dilemma with regard to paragraph 6 of this Statement, for after the word "enrolled" might be added "and signed a declaration in which for the first time in the history of the Institute the word 'surveyor' appears." This is a matter quite outside our Charters, and one which has never been used as Mr. Peach said, against us, and considered as the result of the nature of poaching by another institution. With regard to the concluding sentence in paragraph 7, it is a fact that the Society did oppose and obstruct the enrolment of Licentiates of this Institute. I think, too, that a paragraph is missing between the fatal 13 and one sees this has to do with the law and 14. The addition, I suggest, we might call 13a—viz., "That as the result of the last Council elections the Vice-President, who, in absence from our Council, no one regrets more than myself, most identified with the above proposals was rejected."

The President: I am sorry to interrupt you, Mr. Shepherd, but is this to the point?

Mr. Shepherd: I am discussing the Council's Statement of Policy, viz., the two points which are also mentioned in the Summary of Architects were at the bottom of the poll. The Associate who was also a

member of the Society of Architects was not elected. I think this should have been some guide to the incoming Council as to what the general body thought with regard to the previous proposals. That is my point.

The President: Were there any other gentlemen at the bottom of the poll?

Mr. Shepherd: What I mean is that whereas the candidate at the top of the poll for membership of Council as a Fellow polled over 500 votes, the gentleman who is also a member of the Society of Architects found only fifty supporters. My point is this: that the general body, in the only way we could possibly express approval or disapproval of the proposals which had been recently before them, by the vote at the elections for the Council, definitely indicated their objection to the policy proposed. Now let us turn to the Agreement. We are in some difficulty here at once, for it takes two parties to make an agreement, and whilst we are informed by you that this Agreement may be approved with or without modification, the other party have told their members that if these proposals are not passed in their present form, they will not be called together to deal with the matter. We think it would have been more in keeping with the position and dignity of this Institute if the Society had first been asked to agree to these terms. We should like to say something to the medical architects and architects in this room. We frankly believe that should you by the cast of your vote carry this resolution to-night, you will put back the cause of Registration which you have so much at heart. ("No.") I feel sure that if this resolution is carried some of us will have to seriously consider whether we can properly remain members of the Institute. Others may not feel justified in so doing, so approved or not, stop at your Bill will stand in danger of being actively opposed from within your own body. What chance has such a Bill of ever becoming law? I would call the meeting's attention to the fact that actually one of the officials of the body with whom you are proposing to amalgamate has definitely said that "A Registration Bill on the lines proposed by the Institute has no more chance of becoming an Act of Parliament than he has of becoming Prime Minister." I think the meeting will agree with him. We cannot believe that these gentlemen are aware of the facts of the case. Speaking in round numbers, there are at present close upon 7,000 practising architects in the United Kingdom. Taken together, the whole of the Fellows, Associates, and Licentiates, are the whole of the Society of Architects, a number only about 2,500, leaving about 4,500 practising architects outside the two bodies. ("No, no.") I say *practising* architects and if my figures are investigated, they will be found to be justified. How can you say, in the face of these figures, you are going to obtain by this Bill the registration of the whole profession? I beg to second the reference back of the motion upon the paper.

Mr. Horace T. Bonner (A.): I have not heard one single fact put forward this evening against the proposal of our Council that we can treat as legitimate opposition based on broad principles against the great principle adopted by us in the year 1807. It will be a great pity for us to have dissidents within our own walls. I am speaking now as an old architect, as is an old member of the Institute. I am sure that of opposition to the admission of members of another Society is what I may term a little factions, and is not in the best interests of the profession at large. The interests of the profession are mainly based on Registration. When we get Registration our status will be higher in the eyes of the public, and we shall certainly have better men join us. The title of professional even among ourselves is not hereditary: it will die out in time. It will be the same with us as it was with the members of the medical profession. When they obtained their Registration Bill they had to admit chemists, possibly quacks, and other so-called practitioners, and we shall have to do much the same, though I hope we shall not have many quacks in our profession. I do really think that if we could in some way

bring about this amalgamation it would be very much better for the profession at large, and help to make the Institute stronger and more respected than it is now. If we want this Bill passed we must be unanimous, and we must have neither opposition inside our walls nor outside; we must have the whole of the profession properly represented. As to the discussion of the details of this Bill to-night, it is an impossibility. We are here to-night only to discuss broad principles. ("No.") Let us then enter into those broad principles with an open mind, and consider that it is our duty not only for ourselves as Associates, but what is best for the Institute and for our noble profession. That is what I aim at doing. I have a proposal to bring forward with regard to Associates and their representation on the Council; but that will be a matter to discuss later, when this big question is settled. I am sure that if the present proposals are agreed to, they will be found to be extremely beneficial, and especially to the younger members of the Institute, therefore, much pleasure in supporting the resolution.

Mr. Sydney Perks, F.S.A. (F.): I have listened carefully to the interesting historical account of what has taken place, and I waited to hear the reasons why we should adopt the scheme. The account was very long and much in detail, but the reasons for its adoption were very few. The speaker, and the second, with a childlike innocence which I envy, seemed to assume that if we made terms with the Society of Architects we could go on together united; we should get our Bill passed, and there would be an end of the matter. That assumption, I feel, is born of ignorance. There are two facts which we want to grasp to-night. The first is that we cannot make one omelette without doing so with the principle of Registration. Whatever your views may be for or against it, Registration has nothing to do with the business we are here to discuss, which is to sanction the admission into the Institute of the Society of Architects; that is all; it has nothing to do with Registration; we are going on with that, with or without the Society of Architects. It has been said that you cannot make one omelette without breaking eggs; but you must not make your omelettes with bad eggs. This is a very bad egg, and we do not want to swallow an omelette which is made with it. I think this matter is of most vital importance, particularly to the younger members of the profession; I do not think it affects the older members, because their positions are assured: they have honours and a big position; the younger would suffer. The gentleman our President humorously referred to as the "under-strapper"; it is the young man we have to consider. The most important man in this room, from this point of view, is the latest Associate, not the President. With regard to this Bill and the possibility of getting it through Parliament, it struck me that it would be a good plan to get the suggestion I could not on the brain of the speaker, so I obtained an introduction to one of the first, if not the very first, firm of Parliamentary Agents, Messrs. Sherwood and Co., of 22, Abingdon-street, Westminster, and asked them to report to me on the Bill. With your permission it would be better if I were to read the report to you rather than tell you what is in it. They report as follows: "We have now carefully considered the Draft Bill for the Registration of Architects which you have laid before us with reference to the points on which you desire our opinion. We do not think that the Bill would be allowed to proceed other than as a public Bill. The distinction between public and private Bills is that the latter are applicable in respect of proposals affecting particular localities, persons or bodies; whereas the former are applicable to general legislation and matters which affect the community, or large classes of the community, as a whole. The most recent case on the question was that of a private Bill which was promoted by the Society of Apothecaries of London in 1894. The Society of Apothecaries acted in violation of Charter and various Acts of Parliament amending that Charter, and the object of the

Bill was to empower the Society to conduct examinations for the purpose of testing the fitness of persons to practise in dentistry and dental surgery, and to grant certificates of such fitness. This Bill was stopped at the outset by the Speaker, with whom the decision rests. On the ground, it is believed, that it was a matter affecting too large a class of the community to be dealt with by means of a private Bill. We are of opinion that a Bill which prohibits the practice as an architect by any member of the community unless he is registered by the Royal Institute of British Architects must fall within this ruling, and that therefore the Bill must be promoted as a public Bill. Private Bills may be introduced either by the Government of the day or by private Members of Parliament, and as we assume that this is not a matter which the Government would take up, it must be proceeded with, if at all, as a private member's Bill. The right of priority in bringing in such a Bill is allotted for Members at the commencement of the Session, and the Society may obtain the first few places in the ballot who have the slightest chance of seeing their Bills placed upon the Statute Book. Nowadays, when the time of Parliament is so fully occupied, a private Member's Bill to which there is any appreciable amount of opposition has practically no chance of success, unless facilities for its passage are granted by the Government, the shape of extra time for debate, etc., as, for example, in the case of the Small Landholders (Scotland) Bill of last session. We may mention that a private Member's Bill for the Registration of Nurses has been introduced on more than one occasion, but has never obtained the necessary facilities to enable it to proceed. When a private Member's Bill of the character of the proposed Bill is introduced, it is referred to a Committee, who hear evidence of parties interested. Counsel are not usually heard in such cases, so that the expense (providing the witnesses did not charge a fee) could be negligible. In fact, the only appreciable expense involved in connection with a private Member's Bill is that incurred in the drafting of the Bill, and in printing and circulating statements in support of the proposals. With regard to the proposals of the Bill fixing the remuneration of architects according to a scale to be approved by the Home Secretary, we know of no precedent for any such provision, except in the case of certain legal charges where the work follows a regular course, and in the case of fees can be very exactly of some degree of exactitude, and a few cases where the services rendered are of a quasi-public character, as, e.g., the case of the district surveyors under the London Building Acts. With regard to the proposal requiring local and other public authorities to appoint architects to advise them in certain cases, this is, of course, quite unprecedented, and the only view would be very unlikely to succeed as it would be opposed by the various associations of local authorities. These associations would be certain to see that their views were strongly represented to all the Members of Parliament, who, as a rule, attach considerable weight to the views of local authorities in their constituencies. This report, then, tells us that the Bill referred to as admitted by the Council, has very little chance of passing; and it is interesting to note that the expense of promoting it would be practically nothing. We go on, and we are beaten by the Society of Architects, it will cost us nothing, and we shall see where we are. Bills can be introduced again and again. I think the policy of the Council has been a policy of pure funk: they have looked at a dwarf and fanned it as a giant. Look at the opposition in their directions. Every local authority would oppose the Bill. Politicians would not do it. You would grant facilities to large trading companies which you would not to the man who has the ratepayers' interests at heart. You put in a clause to enable local authorities employ architects at the cost of the ratepayers, but you ban large capitalist companies, earning big dividends, to proceed without. Apparently,

in the case of railway stations, the local authority has to employ an architect to act with the engineer of the railway company. If at Manchester a great station is to be built, the railway company employs an architect, but under the Bill the local authority must employ an architect. The local authority will say:—"Why should this come out of the rates? You give a privilege to a trading company which you should not do; you are having their work done at the expense of the ratepayer." That is not the only opposition I can see. Our Council have not approached the Surveyors' Institution or the Institution of Civil Engineers. These are both very important bodies. They have thousands of members all over the kingdom working for the Government and for local authorities, closer in touch with Parliament than we are, and having the ear of Members. Those are the men who will say we should have gone to them. The Council ought to have gone to them and ascertained whether the Institute could count on their support. They could have approached the Society of Architects. But if we go to Parliament and find we have the local authorities, the Institution of Civil Engineers, the Surveyors' Institution, and other large bodies against us, what would it matter if we had added to that opposition a small society of only a few hundred members? Our Council have been wasting time. Instead of making honourable proposals to a responsible body like the Surveyors' Institution, it has been wasting its time flitting with an insignificant little "flapper." Our Council come to us to ask us to bless the union. But we are going to put our paternal foot down and say "No." I have shown good reason why we should not go with this scheme in the face of the opposition we are bound to get from far more important bodies than the Society of Architects; but I have a much more important reason, and that is our Royal Charter. Royal Charters are very valuable. Some things may increase in value by being brought up to date—but a Royal Charter is not one of them. I know certain bodies that would not think of asking the Privy Council to sanction an alteration in their Charter, except for the very gravest reasons. But here I see that the Institute obtained a fresh Charter in 1887, another in 1909, and now it is proposed to ask for another in 1912. I saw a gentleman who could give me the very best advice on this subject, and in mentioning the matter to this meeting, he said, "Do not do this. I have been told to him, 'Do not answer me if you think what I am asking is a question I should not put to you. But is it advisable for us to go to the Privy Council and ask for an amendment to our Charter?' I explained to him, very shortly, what the proposal was. He spoke very highly of the Institute, and said, 'What you say is right; the proposal is a mistake in the eyes of the nation. If you take in your own word mean that you would be extending the privileges of the Royal Charter to a body without one, and that is a very serious thing for you to contemplate. It might lead to an inquiry, and it is not a good thing to have an inquiry about a charter.' And he left it there. I do not think this Institute should do anything to jeopardise our Charter. And when we consider, if this proposal were passed, it is so disliked that there would be a protest to the Privy Council, signed by many members of the Institute, is it worth while taking this risk in the face of so strong an opposition? When you make a bargain, you ask what you are going to get for it. We are going to get very little. It is very nice for the Society of Architects; they play the game 'Heads I win; tails you lose.' We don't want to join in. It has been said that we want to go carefully; we want to admit this antagonistic Society, and make friends of our enemies. If we do that we shall make enemies of our friends, because this proposal is intensely disliked by many of the younger members, who think their position is going to be damaged. It is admitted that the status of the Institute will be damaged for a time, but it is said that it will get right in the end. It is an obvious

fact that we may never get Registration. I was one of the first to advocate Registration. I spoke in favour of Registration twenty years ago, and I was laughed at. But I was never the status of the Institute was less, its influence, and you should think very seriously of this. I do not think it would help us in the slightest if we admitted the Society. I support the amendment to refer this proposal back for further consideration. Proper overtures should be made to big people who are likely to oppose us, and then we might think of these little people afterwards.

Mr. W. R. Davidge (A.): After the exceedingly damaging indictment by the last speaker, I do not think I need touch on the legal points. The Council themselves admit that the proposals must damage a large number of members of the Institute, and I venture to say that if every member here looks into the proposals, he will find that there is no class of member which will not be damaged in some way or another. When we received the Bill, I was inclined to think that the Council were right in their proposals. But if you look into the scheme you will find that not only is injustice done to every class, but an outside body is to be allowed to nominate 100 Fellows to the highest class of this Institute without a murmur from anyone, either on the Council or in the general body. This same outside body is also to be allowed to nominate an unlimited number to come into the Licentiate class, and then, without a word from the general body, by the approval alone of the Council, they are to be transferred direct to the Fellowship. It is a gross injustice to all our existing Licentiates.

The President: Will you add that there has to be an examination?

Mr. Davidge: After examination. But the same injustice remains. ("No.") Those who say "No" have not read it. The next point, the injustice to the Associates, has been very ably dealt with by Mr. Needham Wilson himself. It speaks for itself. But the opposition comes not from the Associates, but from the united backbone of the Institute. And the injustice does not stop there. The Students of this Institute who have spent years studying for the Preliminary and Intermediate Examinations will have added to their number other students, with no greater abilities, all of whom are to be exempted from the Preliminary, and many of them from the Intermediate. What for? Is that fair? The first and most important point of all is whether all this sacrifice is necessary. Is there any professional institution that possesses registration? We have felt it necessary to absorb every other professional body? Not one. The medical profession has been touched upon by a previous speaker. He knows there are many bodies in the medical profession which are united for registration purposes, but for no other purpose. We are anxious to unite with everybody who will help us in the work we have in hand, and we do not see the necessity for this amalgamation. I need not touch upon the way in which the Council themselves are divided on the point. I need not emphasise the point that this document itself bears evidence of very great diversity of opinion, and should be referred back to the Council for further consideration.*

Mr. G. L. Elkington (A.): The amendment is that this Agreement should be referred back. I appeal to all here to examine certain clauses in the Agreement as business men.

* Mr. Davidge, in some concluding remarks, referred to a discrepancy in the Institute Papers as to the date of King Edward's Supplemental Charter, which in the notice paper for the meeting of January 5 (p. 5) is given as "11th January, 1909," while in the Calendar (p. 40) it appears as "21st December, 1909." The discrepancy was pointed out by a letter received from the Privy Council that the King had approved the grant on the "21st December, 1909." (See Journal, January, 1910, p. 170.) This was assumed to be the date of the grant, and the Charter (it) now has always been cited as of that date. The letters patent under the Great Seal, however, bears the date of the "11th January, 1909," and the collectors advising that this is the official date, it was so cited in the notice paper. For the future, therefore, the date of King Edward's Supplemental Charter will be given as 1909 instead of 1908.—Ed. R.I.B.A. Journal.

On page 2, subsection (a) of the document says: "The Royal Institute shall provide appointments for two senior members of the Society's salaried staff." I desire to point out that under Section 16 of the Charter of 1887 such a matter rests entirely with the Council, and the general body has no power to relieve the Council of its responsibilities under that Charter. The Charter is to be overridden in other respects, admittedly. You are redressing that by applying for a fundamental Charter, but the Council is not seeking in that Supplemental Charter, the requisite power for the general body to assume any responsibility now vested solely in the Council. This meeting cannot pass the proposed Agreement in this form. If it did, any member not here present, or not a party to it, would have a right of redress against the Council and against the Institute for having proceeded contrary to the Royal Charter, which is in force. Another point I desire to make also shows the feeble way in which this Agreement has been drafted. It is provided that the assets of the Society shall be applied to the payment of its debts, and the Institute is to make good any deficiency. On a former occasion we were informed that those assets exceeded the liabilities, and that there would be very little risk of the Institute's funds being touched. But it must be remembered that this Society is nothing more than a limited liability company, with articles of association, and what is there to prevent it from incurring further liabilities, or otherwise disposing of these assets in the interval between the signature of this Agreement and the winding up of the Society? The Institute is not pledging its Agreement to make good an unknown deficiency. It is absurd that a body of men, practising architects, men of intelligence and some knowledge of business matters, should be asked to consent to such an Agreement. I am dealing with the form of the Agreement only, because other speakers have dealt with its principles, and I think that if this meeting will only regard it in a business light they will see that it is never to be accepted. I will now amend and refer the whole matter back to the Council for reconsideration. On a former occasion, as stated in the Council's Statement of Policy, a Draft Bill for the Registration of Architects was submitted, and more or less carried. During that discussion—and it is on the minutes of that meeting—you, Mr. President, undertook to draw up a note in which suggestions which had been made relative to the wording of the clauses of that Draft Bill. You undertook further that the Council should give them consideration. Several months have elapsed since that undertaking, but the clauses come before us now in the same form as before, and we are left quite in the dark as to whether the Council have given consideration to them or not. I support heartily the amendment proposed by Mr. Peach.

Professor Beresford Pitt (F.): I wish to support Mr. Peach's amendment, because I think it is inadvisable to include a Draft Bill in the Agreement, for the reason that the Draft Bill does not conform with the unanimous decision of the Institute. Mr. Gibson, in his masterly speech, on which I should like most heartily to congratulate him, as I congratulate myself on being present to hear it sketched with all the skill of a Northerner over the exceedingly thin ice of subsection 1 Section IV of the Report presented in March 1907. Of course, you will not find subsection 1 here. It is carefully excluded. If you go back to the Report of the Registration Committee appointed by the Institute a report which was in the nature of a compromise in order to get the business which existed in the Institute marshalled as far as possible on behalf of Registration a report which carried many with it who otherwise would not be converted to the principle at all—that Report was adopted by the Institute with the express exclusion of the requirement that public bodies should employ a member of the Royal Institute. Therefore I suggest that with this clause in agreement the Report of the Registration Committee ought to be set out. We are told—Mr. Gibson clearly that when the

matter was laid before the solicitor he said it was nebulous. So subsection 1 is put in again. And this is a definite movement. I make no invidious suggestion—it is a movement to get the Institute to night to swallow a report which it unanimously refused before. Further consideration of this point is eminently desirable, and on that account, and on that account only, I beg to support Mr. Peach's amendment. The effect is, I think, that the Agreement be referred back for the purpose of excluding from it the First Schedule.

Mr. R. J. Angel (A.) moved that the amendment be forthwith put, and

Mr. W. H. Burt (A.) seconded.

Sir Aston Webb, C.B., C.V.O., R.A. (F.): I speak very reluctantly to-night, and I have come here reluctantly, because I have never been a supporter of such a scheme of Registration as is now put before us. I think it is better that we in this Institute, when discussing this matter, as I am glad we are doing this evening, in a reasonable and friendly spirit, should say quite plainly what we really think. I am aware that a large number of members are in favour of compulsory Registration of the severest kind. I know that this feeling exists, and I determined not to oppose the general feeling of the profession, though I cannot assist it. It is for that reason that I have stayed away; but I have been told that that is not the right thing to do, that one ought to come and state one's position. So I am here to state that it seems to me that this Agreement is of a very complicated character, because, in spite of what has been said, we have two points to consider. One is the desirability of taking the Society of Architects into our ranks. And the other is to approve the outlines of a Bill for compulsory Registration of a very stringent kind. It seems to me that it is open to us all to debate the question of the junction of the Society of Architects with the Royal Institute, and I suppose that we should all take it as a general principle that it is better to have one united body representing the architects of the United Kingdom than two, and that it is entirely a matter of terms whether we approve of the amalgamation or not. But I am bound to say that, having given this my best consideration, I do not think that it is a reasonable proposition to include the details of this Bill in the proposed Agreement. I greatly hope that the Council, and I am very sorry there are so many of them absent to-night, will note that we were reconsidering the matter, which has been laid so fairly and strongly before us by several speakers. Mr. Peach, I thought, moved his proposal in a most proper and reasonable way. I feel bound to support that proposal, and I shall vote for asking the Council to reconsider this question of including the Bill. I am quite sure that it will lead to endless complications if we commit ourselves to the details of the Bill, and I am sure that the trust of Architects, and are they going to trust us? If so, why is it necessary? I do not think it is a dignified position for us to commit ourselves to the details of a Bill in order to bring them in. Surely the advantage to them is very far greater than that. To become members of this Institute would be an immense advantage to them, though I think that they would be bound to give it to the profession too. But that we should be bound down to details of a Bill in order to bring them in seems to me an impossible proposal. And I hope you will have regard to the very strong feeling expressed by members this evening. I believe there is a strong feeling that whether we approve of Registration or not, whether we approve of the amalgamation of the Society of Architects or not, we shall have to approve of tackling on details of a Registration Bill to this Agreement, because we feel sure that if the Society of Architects come to they should come in on an equality with us. If not, the Bill will be a constant source of friction between us. I do not think any Parliament would pass a Bill including these provisions with regard to local authorities. Every council will get hold of their Member and tell him that if this Bill comes up he must vote against it. And he would certainly do so. You would have them

against you over that point, and against you on most other points. It is reasonable that we should ascertain—and I think it is only a friendly thing that we should ascertain—the feeling of the engineers and the surveyors with regard to it. I am told they are not friendly to a proposal of this sort. If they are not, I think we should break the ground first by finding out from them why they oppose it, and see whether it would be possible. I heard in a resolution properly they would not oppose. Otherwise it is hopeless to attempt to promote a Bill and think we could carry it; yet if we failed we shall have brought these men in, and it will be said that we have not done what we promised. It will be said that we ought to have done it, and that we have not gone the right way about it. I have many other things to say, but at this late hour it is better to centre my remarks on that one point, and I sincerely hope that you will meet the general feeling by agreeing to reconsider this proposal, and take it back for this purpose.

The President: It is now ten o'clock, and as we cannot go on much longer, it will probably be the simplest thing if we adjourn now, and in the meantime, before we meet again, the Council will consider this proposal.

Mr. K. Gammell (A.): I rise on a point of order. I heard in a resolution properly proposed and properly seconded. But it was quite rightly, by your courtesy, Sir, that Sir Aston Webb was heard. We are very lucky to have had such a splendid criticism of this question from him. A gentleman, however, at the back of me asked whether it was strictly in order, and I submit that it was not.

The President: The meeting evidently wishes to vote upon the question, and I have no desire to prevent it. Therefore, I put this matter to the vote. Mr. Peach, will you kindly repeat your amendment?

Mr. Peach: The amendment is that the Agreement be referred back to the Council for further consideration.

The President: On two points, I think you said, particularly.

Mr. Peach: It has been put on three points—on the matter of including the Bill and the Charter and the Arbitration clause.

Mr. Gammell: It is the whole thing.

Mr. Elkington: I supported the amendment on the distinct understanding that it meant what it said—that the proposed Agreement be referred back.

Mr. Shepherd: As a matter of personal explanation, I believe I am in order, Sir, in declining to support what I understand to be the amendment seconded, and understood. Mr. Stanley Peach to move the reference back to the Council of the Agreement embodied in their resolution, which embraces the whole of the subject matter of the notice paper. That is what I understood as seconding the amendment.

Mr. Peach: With the permission of my second, we ask you to take it back on the whole.

The President: I put it to the vote. The amendment is that the whole matter be referred back to the Council for further consideration.

On a show of hands, the amendment was carried by a large majority.

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION.

A joint meeting of the Architectural Association with its Camera, Sketch, and Delicat Club was held on Monday evening at 18 Tutors' Hall, Westminster. Mr. W. Curtis Green, F.R.I.B.A., Vice-President, occupying the chair. Mr. J. Burford and Mr. C. E. Guyatt were elected as Members. The chairman announced that a special meeting would be held on Monday, March 11, at 7.15 p.m., immediately before the ordinary meeting to consider a proposal to alter By-law No. 36.

By-law 36, "Ordinary members of the Council shall be eligible for not more than three consecutive sessions. The office of any ordinary member shall be held for more than one session. Members are eligible for election to serve as ordinary Members of Council for not more than three consecutive sessions. After each term of office on the Council."

On the motion of the chairman, votes of thanks were passed to Mr. J. J. Brunet for allowing members to visit the British Museum extension on February 17, and to Mr. H. E. Blake, the contractor, for providing tea on that occasion; and also to Mrs. Arthur Cates for generously presenting a large number of architectural photographs to the Association library.

THE NEW SECRETARY.

The chairman announced amid applause that the Council had appointed Mr. F. R. Yerbury as secretary, to fill the place so long occupied by Mr. J. J. Brunet. Mr. Yerbury had been eleven years in the office, and had been carrying out the secretarial duties of the Association for the past few months, since Mr. Driver's sudden death in November last. He believed that the members would be pleased to know that the Council had now permanently elected him to the post.

HOPES AND FEARS FOR ARCHITECTURE.

Mr. F. C. Eden read a paper bearing this title, in which he sketched the successive phases and fashions that have marked the development of architecture during the last century, from the Greek and Italian renaissances, the Gothic revival, the Queen Anne reaction, the Arts and Crafts movement, and the short-lived spirit of Byzantine adaptation. Whence, he asked, was artistic salvation to come from? Was it to be Byzantine, Georgian, or Neo-Grec, and would it be controlled by French influences? Were we to account for the incessant change of the last hundred years have we witnessed as a stirring of vigorous life or as a restless craving for some new thing, a fashionable acquiescence in the unimportance of being earnest about anything for long, as the gushing of a perpetual fount of fresh ideas, or as mere idle floating with the stream? Was it inspiration or decay, the waving of a banner or flapping of a shroud? Seeing that all great accomplishment in the past had come from working steadily along a simple line of age-long tradition, it could not be seriously maintained that such rapidly-changing fashions were beneficial to art. Nevertheless, the lecturer contended, almost every passing phase had left some good behind it. For example, there was still something to be learnt from the Gothic revival. The lesson was twofold: first, enthusiasm; and, secondly, definite principles, without which enthusiasm ran to seed. Still, if the principles enunciated by Ruskin and other "intolerant amateurs" were universal and sound, he thought that a certain falseness and partiality in their application had run back like a taint and corrupted the source, with the result that now there was little recognition of any fixed laws or æsthetic standard. The followers of art had become an undisciplined mob, and the practice of art had become a riot of eclecticism and experiment. The rules and precedents which were the police of art were discredited and powerless, and the artistic hooligan remained master of the situation. Again, it was the Arts and Crafts movement which emphasized the importance of a more intimate relationship between the artist, workmanship, and design; and though the doctrine was sometimes pushed to the point of absurdity, its influence had already been considerable and in the main wholesome. The question of the education of the architect is, Mr. Eden continued, ever with us, but what is really pressing is the education of the general public. However, scholarly and efficient as body architects may be, they are powerless until the outside world becomes interested and appreciative. However, there is little doubt that among educated people the knowledge of architecture has made enormous strides during the past thirty years, and that for this advance credit is due to the collecting mania, its larger proportion, it does breed in them a feeling for form, an appreciation of good workmanship, and it creates a standard. In other words, it educates popular taste. It would seem to be partly the cause and partly the effect of the present popularity of 18th-century art, which is, at first sight, so strange and unaccountable.

But of this I am convinced, that we have a form of architecture which is pure vernacular, next of the soil, straight from the "great heart of the people." It is built with entire and obvious singleness of aim, without affectation or conscious striving after beauty, and of the materials that are easiest to be got. The professional architect, that bogey of a certain school of critics, has no part or lot in it. It comes as direct from the workshop as anything possibly could do. I allude to the architecture of the typical suburb, of the artisans' quarter, of the speculator; in other words, the art of the jerry-builder. Perhaps this is where the true hope for architecture lies. Who can tell? The main purpose of all mechanical inventions, from the printing press onwards, has been not that things may be better done, but that they may be more quickly done. The ideal of speed has supplanted the ideal of efficiency. This, I suppose, is the chief recommendation of

REINFORCED CONCRETE.

as a building material. What concerns us is the influence for good or evil which this new method of construction is likely to exercise upon the art of architecture. Attempts have been made abroad if not at home to originate a style peculiar to a new and untried material. We are to use it in the most direct way possible, with entire truth to its qualities of thinness, toughness, and so forth. A monolithic building should achieve such expression as it is capable of without imitating other materials or requiring one of other methods of construction. Let it confess itself for what it is without concealment and without shame. This is the way, we are told, to achieve character; beauty may come later. But whatever the material we are using, the natural conditions of gravity, weather, and light, remain unchanged; and our endeavours to meet these conditions cannot be expressed in ways wholly different from those of the past. Some people are sorely puzzled over the proper treatment of the wall face. One will employ acid to dissolve the matrix and expose the aggregate, another will tap the surface to remove the aggregate and emphasise the matrix. A third, following the counsel of despair, cleaves his skeleton with stone, brick, or faience, which does not seem a great advance upon the Tower Bridge type. To the man whose tastes are calculating and scientific, ferro-concrete offers a more attractive appeal; whereas, in the view of the laudator tenebris acti, an ounce of tradition, that is to say, experience methodised by the knowledge that comes with centuries of practice, will always outweigh a ton of professional theorising. If one were concerned to deprecate its use for general building purposes as likely to retard genuine architectural advance, he would do so on some such grounds as these. Firstly, that by its use it is quite possible to erect buildings of monumental scale with walls of startling height. But it is not to encourage beauty in a building, there must be usefulness; and to be useful it must appear stable. All supports must satisfy the eye as to their adequacy as well as the intellect. It may be thought that this is all matter of association; in time the eye will accustom itself to lightness of effect. There is some truth in this. But familiarity is not all. The reason why steel, whether embedded or not, can never be æsthetically satisfactory as a building material, is due to the partly that it is not natural, but an artificial product, and partly that all fine architecture is generous of its materials. It is never content with a minimum of solidity or a bare margin of strength. It has been left to the engineer and the speculating builder to work that out in their several lines. In the next place, he would urge that a greatly increased use of reinforced concrete would have a disastrous effect upon proportion as we have learnt it from the great masters. It is not until they have disappeared from the face of the earth our standard remains fixed, quite apart from any Vitruvian rules or mathematical ratios. Lastly, it is in reality a method of concealed construction quite independently of any outer casing. To the eye, a beam of reinforced concrete differs in no

way from a beam without such reinforcement. Here, again, no doubt our critics would be met with the reply that so far as proportion and deception are concerned, it is all a matter of education of the eye. When that has become habituated to the new method of building, his objection will cease to have any force.

REPRESENTATIVE BUILDINGS.

Just as the church and the castle may be taken as typical Medieval aspirations, so we may safely select as the building most representative of the spirit of this industrial age the shop-front. It has been dinned into us from our architectural cradles as a prime axiom of criticism that every edifice must be expressive of its purpose and use. What, then, is to happen when the conditions imposed are vulgar, sordid, or unworthy? If the axiom above stated is to hold good the architecture will have to follow suit; and then the strangest result ensues. To save his art from shipwreck, the skilled architect throws overboard its first principles, and his design becomes an inexpressive or lying mask. But such conditions do not hamper the careless, the glib, or the complacent with him willingly enough, and so his work is actually more characteristic and expressive than that of his conscientious brother. Look at that American "store" in Oxford-street. A fine design, but surely not a shop! Or we may consider another class of building common enough in large towns—the block of flats, or the oddly-named "model dwellings." Here conditions which imply several stories of approximately equal height, subdivided into suites of small rooms, produce of necessity frontages in which the proportion of solid to voids is much the same as in a sieve. Add to this the necessity of building cheaply enough to show a fair percentage upon capital invested, and I ask you whether architecture so conditioned can be monumental.

TOWN PLANNING.

And now what of town planning, that ancient fad of doctrinaire and tyrant, whether monarchical or democratic? For Nebuchadnezzar had his views upon the subject no less than Mr. John Burns. Is the movement which has by this time gained considerable momentum likely to communicate any forward impetus to your art? The motto heresy is indicative of a sickness which has long afflicted British architecture and that is pettiness. By this I mean not only timidity of scale—so noticeable in our larger buildings—but smallness of idea. Have we any ground for hope, based on the experiments at Port Sunlight, Letchworth, Golder's Green, and Gidea Park, that when the designer has to think in acres instead of poles, and in streets and squares instead of single houses, his ideas will be braced to a larger scope, or will they peter out in a mere multiplication of dim and unrelated units? Still, in so far as it may tend to promote orderliness and grandeur of conception, the movement is all to the good. But in appraising its value it should be remembered that the congestion which the recent Act attempts to relieve is, after all, only a symptom. The real disease is the monstrous overgrowth of modern towns. Check that by legislation if you can; all else is merely palliative. But housing reform and the planning of stately towns with grandiose approaches to public buildings centrally placed are, of course, entirely distinct problems, since it is not the poor who will inhabit these pompous avenues. The latter, if a less pressing need, naturally affords greater scope for architecture. At the same time, there is a certain unpleasant kind of artificiality about the town that is consciously planned. The normal town is not planned, but grows, and this is a purely mechanical, quasi-organic growth. Certainly we have no need to imitate this in our drawing-board schemes, but the town planner should note that if there be one unvarying æsthetic principle which the town that has grown with the centuries teaches it is this: the narrower the street, the taller the house, and, conversely, the wider the street, the lower, relatively, do the houses become. The

law that no excellent proportion is possible between lofty buildings and wide streets is incontrovertible; and it is no less true that the effect of a narrow lane bordered by two-storied elements is one of typical squalor and meaning. But where is the lover of good things went to linger in his search for beauty and historic interest? Among the straight, unhaunted streets of Mannheim, Karlsruhe, and Turin, or among the memories and surprises of Toledo, Siena, and Bruges? And as to what constitutes the ideal town, some of us may be inclined to think that the opinions of the painter and the poet are at least as valuable as those of the inspector of nuisances and the sewage farmer.

ARCHITECTURAL BEAUTY ONLY SKIN DEEP.

When all deductions have been made for the evils to which architecture has resorted in following the dictates of fashion or in compliance with requirements of ever-increasing complexity and uselessness, we may claim to have made real progress in one, and that a most important, particular, namely, economy, and, as a whole group, namely, sympathetic and, as a whole group, traditional treatment of material, involving as it does both texture and colour. We have realised that architectural, like other beauty, is only skin deep. It is now generally admitted that in the Gothic style of all others traditional methods of workmanship and construction are strictly speaking, essential, and that where they are neglected the medicalizing of buildings with the Medieval in-trade is perverse and futile. All improvements in taste and feeling have been brought to pass not by the invention of new materials and methods, but by increased knowledge of the past. The further we are enabled to enter into that rich heritage, the clearer will it become to us that "in its contact with the ages the wisdom of the ancients has come down to us absolutely unimpaired."

Mr. Edward Warren, F.S.A., proposed a vote of thanks to Mr. Eden for his most entertaining and suggestive paper, one which, however, was destructive rather than constructive in its outlook. Fears manifestly predominated over hope in the lecturer's adaptations for our architecture. The dismal picture as a whole of the early 17th-century Greek phase had been prepared for by the thin refinement of the late 18th century, and the emasculated manner of the Brothers Adam. The Gothic revival was due to the novelists, essayists, and poets rather than to fresh thought among architects—the way was paved for it by the writings of Horace Walpole, Walter Scott, and Tennyson. The cottage mania was deplorable when applied to a stockbroker's residence, and smacked of the pride that aped humility in its pretence of being the simple life on £2,000 a year. He must have known that Mr. Eden's coupling of Keble College with Eaton Hall among "Essays in the Ungainly." William Butterfield was a genius, although possibly a genius gone wrong; his works told of strong convictions tenaciously held. The proportions at Keble were fine, those of the Chapel were indeed splendid, and much of the detail was admirably designed, although hard in execution; it was an Oxonian and inappropriate where it stood, but in comparison with the Rushmore-inspired Museum facing it, it was superb. The late J. D. Sedding, with his quick-witted charm and rather unscrupulous flitting from flower to flower in search of originality, prompted restlessness in others, and begot, aided, and abetted an evanescent and unscrupulously bold, whose members drifted away to inevitable reaction. The earlier Gothic devotees had a kind of scholarship, and they possessed that great and wholesome driving force, absolute conviction, which was what many architects lacked now. All had field, Bailey Street, and Pearson, Butterfield, and all had personal force and clear vision, real enthusiasm, and an unhesitating sense of the vital importance of their Gothic pre-occupations. That mountain-moving faith had waned, and there was as yet nothing so strong to take its place. After

a short dalliance, however, with the whirling abomination known as New Art, we had, at any rate, steadied down to a saner and, as he thought, more educated view of the meaning of architecture. There was, however, and probably always will be, a tendency among men lacking in imagination to see little originality—that was to say, the majority in any walk of life to borrow fashions, and just at the present moment the architectural fashions of our French neighbours, who were convinced, direct, and purposeful, were in the ascendant in this country. This had its benefits, but also its dangers—benefits in the lessons of architectural refinement that the best French work could teach, dangers in the unsuitability of an alien manner to the climate, the character, and the needs of this country, and a further danger in the half understanding, the half-assimilation of foreign ideals. To be successful in England, foreign work needed translation to the native vernacular. If our architects must borrow, they should at least translate, as there had not been devised for our buildings any form of architectural inverted commas to suggest a direct quotation, men of strong bent, of fervid imagination, and of a certain individual character, would borrow—like Inigo Jones and Christopher Wren—foreign ideas and foreign forms, and would express themselves still with native vigour therein, but to geniuses all things were possible. Genius could take care of itself; they had to consider the average run of the mildly talented, for whom the architectural outlook was difficult, if not obscured. For the average architect, safety was only to be found in a steady purpose to make all architectural design subserve its appointed ends and purposes, its individual meaning; to cast aside all forms that did not directly contribute to or emphasise construction. There was no need, however, to ignore tradition or the comeliness and pleasantness of ancient acceptations. The point was to understand, without which appreciation or sensible application of accepted form was impossible, and to that end patient, enthusiastic study and careful education were necessary. Honest construction, training, and refined schooling of expression would help the architectural student to avoid the many pitfalls presented by the facilities of modernity—the steel and ferro-concrete aids to construction. For himself, he was not pessimistic as to the future of architecture. He had hope, and strong hope, in the steadily growing consensus of architectural opinion. Every day everywhere they saw going up better, plainer, and more reasonable building, with less ornament. Even Jerry was building a bit plainer and more reasonably, and the omniscient and misquoted Man-in-the-Street was taking it liking to the simpler and less Cockneyed manner. There was much leeway to make up; but it was to the younger men, the coming generation, who were to push the present speaker and his contemporaries from their stools, that they must look for greater sanity, more earnestness, and less nonsense.

Mr. H. H. Statham, in seconding the vote of thanks, said that it had seemed to him that the lecture amounted to a confession of indecision and amazement, and that a pessimistic note had just been sounded afresh by Mr. Warren. If Mr. Eden showed any predilection or sympathy for any particular form of architecture, it was for the Gothic and not the Classic side. Then, again, Mr. Eden had confessed himself as being hopelessly bewildered by the number of past styles. Surely a paper read before an association of young men should not be couched in pessimistic terms, but should suggest a way out of the maze. Personally, he thought architectural design might be divided into three main groups. First, the Monumental manner, which included all buildings in the city, such as offices, warehouses, and shops; secondly, the Suburban manner, which, without aping the City architecture, should be a reflected light; and thirdly, the Grand Domestic manner, which should suggest a way out of the maze in its exemplification. If the various architectural problems of today were properly considered under these

heads, the resulting architecture would be at once sympathetic in all its branches while remaining distinct in its various expressions. Mr. Eden's prophecy of a coming second Greek revival needed explanation and correction. The term "revival" had been a convenient form of appropriation to cast upon an intellectual style. The fact that the practice of Classic architecture had been continued so long in this country was sufficient proof that it was the best medium for modern academic expression. The hope of modern architecture lay in the furtherance of a cosmopolitan style. Insular prejudices would have to be forgotten and a broader view taken of the changed conditions of life. To isolate ourselves from the main movement now in progress all over the world would simply be a policy of suicide.

Mr. Arthur Keen, ex-President, felt that the tone of Mr. Eden's paper had been most unsatisfactory. It expressed fears but no hopes, and left us in the dark as to the lecturer's own view of the future of architecture. In his clever summary of the last two centuries' progress in English architecture, Mr. Eden did not do justice either to the Classic or Gothic revival. In our modern Gothic churches we find impressive and well thought-out schemes which would be admired by future generations. A heritage of evil had, however, been left in the attempt to forge craftsmanship. The lecturer was not quite fair to the present Georgian revival. Indeed, with the growth of knowledge and independence, the long series of revivals which had been enumerated had been quite inevitable. It was clear that we should become more socialistic year by year. Our hope for architecture must be that our students would become more scholarly and academic in the treatment of problems—that they would consider mass, proportion, and scale more, and would strive to work in a broader manner.

Mr. J. Richardson, Mr. V. T. Hodgson, Mr. Alan Potter, and Mr. Cecil C. Brewer also took part in the proceedings, the last speaker evoking a hearty laugh by suggesting that a vote of censure rather than one of thanks should be accorded to Mr. Eden for his dismal prophecies.

In closing the discussion, the chairman remarked that in his work Mr. Eden had shown himself a man ahead of his time. The paper they had listened to separated the artist from the Philistine; it had been full of golden silences, the reticences of the good craftsman. Mr. Eden seemed to regard any recent improvement in our architecture as due to our increased knowledge of and respect for the past. That past was our too unstudied heritage. We were heirs to the aesthetic view and to the organic view, and must apply our intelligence to the ordering and use of that inheritance. He detected in Mr. Eden's paper three hopes for the future—tradition, enthusiasm, and definite principles. The first stood for hereditary skill, the gift of the age of thought, typical of the Classic spirit—the love of definition, intellectual spaciousness, the search for finite perfection. The second stood for the gift of the age of action, and was typical of the Middle Ages; it represented the workshop of the magical and mystical craftsman, the search for the infinite. The third and last stood for the result of all that had gone to produce the present, the two former ages giving to us the freedom of both views—the aesthetic and the organic, furnishing us with the power that was to stamp our work with style. Together, skill and enthusiasm, combined with definite principles, would resolve apparent contradictions, and design and construction into their component parts and produce architecture as the result.

A Primitive Methodist church is about to be built at Tanshield Lea, from plans by Mr. J. W. E. Phillips, of Kew, London, E.C. The contractors are Messrs. Cook and Co., of Blyth, and the outlay will exceed £2,200.

The salary of Mr. A. C. Crow, assistant surveyor of main roads to the Wilts County Council for the Bradford-Devizes-Melksham district, is to be increased to £220, with a further increase of £220 per annum at the end of two years' service.

CURRENT CALAMO.

As a result of the Special General Meeting of the R.I.B.A. on January 8, 1912 (part of which we reproduce elsewhere from the Journal), the Council have appointed a Committee to consider the whole question of Registration, with power to take evidence. The Committee consists of the President, the four Vice-Presidents, and the Hon. Secretary, together with Sir Aston Webb, R.A. (F.), Messrs. A. W. S. Cross (F.), James S. Gibson (F.), J. Alfred Gotch, F.S.A. (F.), Edwin T. Hall (F.), George Hubbard, F.S.A. (F.), Sydney D. Kitson (F.), C. Stanley Peach (F.), John Slater (F.), Septimus Warwick (F.), Percy S. Worthington (F.), W. H. Burt (A.), F. R. Horns (A.), H. W. Wills (A.), and A. Needham Wilson (A.). Mr. John Slater has been appointed Chairman of the Committee, and Mr. John W. Simpson Vice-Chairman.

What line of action with regard to the "reference back" of the "whole thing" by the meeting on January 8 this indicates, we do not know, and it is best to reserve any comment till after the next business meeting on Monday next. At that meeting Mr. Horace T. Bonner (A.) has given notice to move the following resolution:—"That it be an instruction to the Council that in any future or amended Charter, or By-laws under such future or amended Charter, an equal number of Fellows and Associates be elected to such Council, exclusive of the President, four Vice-Presidents, and Hon. Secretary or Secretaries; and that only one list of candidates eligible for election to such Council shall be printed and issued at one date prior to such election, containing the names, addresses, and qualifications of all candidates duly nominated for such election." Mr. Sydney Perks, F.S.A. (F.), has given notice to move the following resolution:—"That every speech delivered at any business meeting shall be published in the Journal at the earliest date after the meeting, subject only to revision by the author, and that the Council be requested to take the necessary steps to carry out this resolution."

With reference to Mr. Perks's resolution, it is possible some may think, after reading his speech on January 8, that "revision by the author" of his speeches, when reported, might sometimes be advantageous. It is true that a good deal of license is taken by all of us nowadays, and Mr. Perks's references to "bad eggs" and "insignificant little flappers" may have meant nothing more than some of the playful endearments at Limehouse and elsewhere by which Mr. Lloyd George affectionately commends his policy to its opponents. But, we confess, if speeches are to be reported we like to read them as they were made. On the general question of reporting all business meetings, Mr. Perks will doubtless have something to urge in favour of his proposition. Some such "business meetings" ought to be reported. Some, consultative with regard to matters under debate, might very well prejudice things they were meant to forward or complete, if prematurely disclosed.

It is only fair to say that at the meeting on January 8, the speeches of Mr. Gibson and Mr. Needham Wilson, who proposed and seconded the motion before the meeting, seem to us to have most fairly and ably summarised the reasons in its favour. Mr.

Stanley Peach's amendment was put with equal good taste and pertinent comprehensiveness. We trust similar courtesy will characterise next Monday's meeting, and that a safe and honourable road may yet be found to the amalgamation which for the present seems postponed. Members of the Institute may legitimately differ as to methods, but we cannot conceive that any considerable number of them are going to withdraw the support which, during the last few years, has brought it well abreast of the times and made it thoroughly and deservedly representative of the profession. If any such mistake is made, and the Society of Architects is to continue its separate existence, a good many of us will have to reconsider our position.

Mr. Runciman, President of the Board of Agriculture, has appointed a committee to advise the Board on matters relating to the development of forestry. References will be made to the committee from time to time, as occasion arises. The committee will be asked in the first instance: (1) To consider and advise upon proposals for a forestry survey; (2) to draw up plans for experiments in silviculture and to report upon questions relating to the selection and laying out of forestal demonstration areas; (3) to advise as to the provision required for the instruction of woodmen. The committee is a strong one, having as chairman Sir Stafford Howard, who is retiring this month from his office of Commissioner of Woods and Forests; and among the other members such respected names in the silvicultural world as Mr. E. R. Pratt (President of the Royal English Arboricultural Society), Professor Sir W. Schlich, and Professor William Somerville. Mr. R. L. Robinson, of the Board of Agriculture and Fisheries, will act as secretary. We trust real business is meant. It is discouraging, after years' talk about afforestation—the one thing, we suppose, Tories, Radicals, Nationalists, Socialists, and Labour men all agree might be done by national effort, that we are still in the "considering and advising" stage.

One of the difficulties which has been disclosed in the carrying out the Housing and Town-Planning Act in England has disappeared north of the Tweed before the sound common-sense of the Scottish Local Government Board. In the English case (at Chester) a building used as a dwelling-house was condemned, and the owner was refused permission to transform it into a warehouse, the English Local Government Board holding that the dwelling must be pulled down and rebuilt. In a recent case in the borough of Ayr, quite a different view was taken of sections 17 and 18 of the Act. The local authority having discovered that the place was unfit for human habitation, the question arose whether, when the inhabitants removed elsewhere and the building was turned into a warehouse, it ceased to be a building, "being or being part of a dwelling-house." The Scottish Board held that if the owner determined to put the condemned building to a different use, the authority has no power to prohibit such use by demolishing it, unless it is a nuisance or injurious to the health of the public or the inhabitants of the neighbouring dwelling-houses. This seems to be a commonsense rendering of the Act.

One has a horrible distrust of amateur joinery of the "home arts" sort, and equally

of the instruction books written by amateurs to guide the neophyte. Even the Deacons, who as Artemus Ward told us, "lived the jiners in his house three days" when he got converted and proceeded literally to "set up a family pulpit at home," had not reached that stage of eccentricity which blinds a man to the fact that if he must make himself a nuisance to his family and friends, he owes it to all concerned to do it as harmlessly as possible. There are, of course, hobby-hunters of sane mind who laugh as heartily as any of us at the queer literature that is offered them, and would be really thankful for something better. It is, therefore, a welcome change to find a really practical manual like "Amateur Joinery in the House," by G. A. Audley and Berthold Audsley (London: George Allen and Co., Ltd., 44, Rathbone-place, 4s. 6d.), in which excellent designs are given, which the amateur may have a shot at with satisfaction, and in which the uses of tools are described in a rational fashion. Twenty-one plates are given, embracing bookcases, tables, chairs, cabinets, plant-stands, sideboards, etc., and twenty-nine illustrations in the text.

The debenture-holders of Measures Brothers, Ltd., are at last to see some of their money back. The receiver and manager for the debenture-holders was appointed as long ago as June, 1909, but it is only this week that a first distribution is being made. Warrants for 10s. in the pound on the nominal amount of the debentures have been issued. It is expected that there will be a further distribution of at least 5s. in the pound. The shareholders will probably get nothing at all.

HOUSE PAINTING AND DECORATION.*

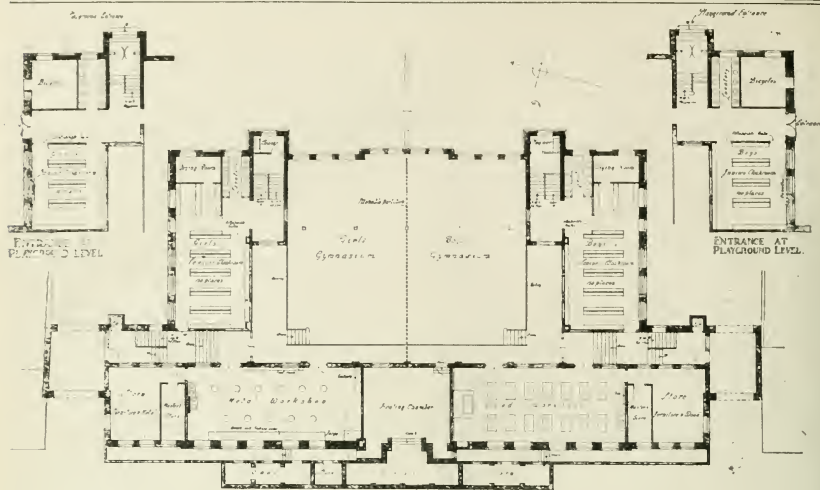
Primarily intended for "people other than professional painters" who do a good deal of painting, Mr. Jennings's book will, nevertheless, be read profitably by many apprentices and workmen, and by others of us who, with no practical knowledge of the trade, are yet, in a way, responsible for bad work, the causes of which are not apparent. It is not the "amateur" only who uses cheap and nasty materials or tools, or who does the right thing in the wrong way or at the wrong time, and thereby courts failure. Take blistering, for instance, about which, and its various causes, Mr. Jennings has much useful matter. Take, again, the too common softening of paint after its first drying, due to the excessive or wrong use of driers, with regard to which the amateur, at any rate, will do well to heed Mr. Jennings's cautionary advice.

Graining, whitewashing, paper-hanging, floor-staining, bath-enamelling, and water-painting are all successively and lucidly dealt with, and a number of miscellaneous hints added which will be found of infinite service to all interested.

Prizes of 1,000dol., 800dol., and 500dol. are to be given in order of merit for the three best designs submitted in competition for the proposed technical school at Toronto. The assessors are Mr. Percy E. Nobbs, A.R.I.B.A., of Montreal; Mr. A. Frank Wickson, Toronto; and Professor McKay, principal of the school.

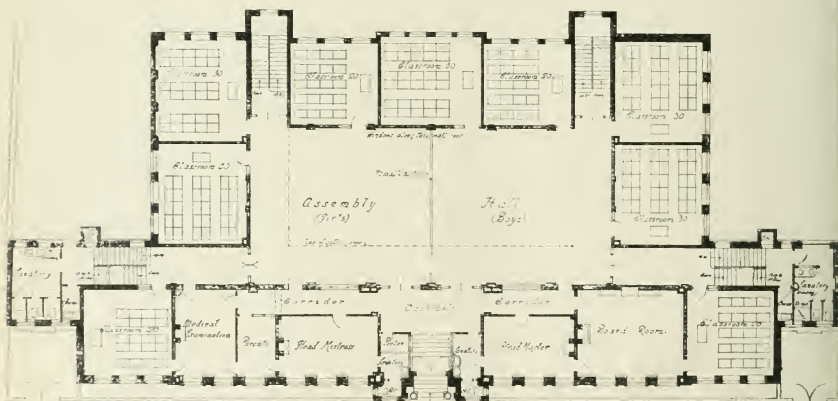
The Llandudno Urban District Council had before them on Friday night reports by the by-laws committee respecting the plans for laying out the several building estates within the urban district, which had been submitted on behalf of the landowners under the Housing and Town-Planning Act. It was decided to hold a special meeting in committee to consider the committee's recommendations.

* House Painting and Decoration: A Popular Guide. By ARTHUR SEYMOUR JENNINGS. London: Thomas Telford, 93 and 94, Chancery-lane, W.C. 2s.



LOWER GROUND FLOOR PLAN:

Model & Elevation
H. O. Ellis, Architect



GROUND FLOOR PLAN:

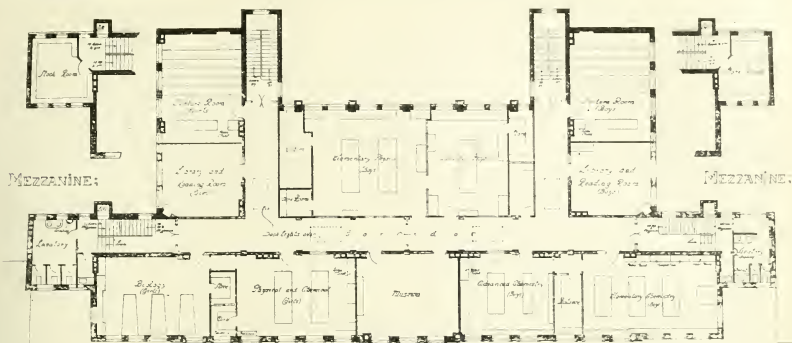
RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.—Mr. H. O. ELLIS, Architect.

**RAINE'S FOUNDATION SCHOOL,
ARBOUR SQUARE, E.**
[WITH ILLUSTRATIONS.]

This charity was founded in 1719 by Henry Raine. Fifty scholars of both sexes still obtain free education. Including the foundationers, 280 pupils are at present taught. Scholarships have been won among the Drapers'

Company's benefactions, and a number of pupils have entered the Technical College of the City and Guilds' Institute. The examiners' reports record a high standard of training, which has developed in scope and importance, and consequently more suitably placed buildings had to be erected. We give a view and plans of the building, which, with the site has involved an outlay of £35,000.

The Mercers' Company helped with the site, and the new accommodation provides for 500 scholars. Compactness of plan marks the arrangements, with classrooms round the assembly hall, half of the classrooms obtaining morning sun and the remainder afternoon sun. Sixteen square feet per scholar, with single desks, are allowed, the farthest pupil being within 19ft. of the



SECOND FLOOR PLAN;

RAINE'S FOUNDATION SCHOOL, ARBOUR SQUARE, E.—Mr. H. O. ELLIS, Architect.

nearest window. The assembly-hall is 84ft. 6in. by 36ft. 6in., giving 6ft. per scholar. All the cloakrooms are on the ground floor. Supplementary w.c. and lavatory provision is made on each floor in wing blocks. The front entrance and administrative rooms are separated, and can be worked independently of the school. The museum, on the second floor, can be entered from either school. The two sexes are specially provided for in a distinct way. The front elevation is in red brickwork of broken colour, with Portland-stone dressings. The plinths are of purple brick. Reinforced concrete is used for the flooring, covered with wood blocks. The contractors are Messrs. James Smith and Sons, of Junction Works, Norwood, the cost being £22,500. Mr. Herbert O. Ellis, of Fenchurch-street, is the architect.

DEFECTS IN BUILDINGS AND THEIR EFFECT ON VALUATION.*

By HAROLD GRIFFITHS, A.R.I.B.A.

The valuation of buildings, as performed by the architect, is probably regarded by the auctioneer as being of a somewhat distorted character, as, judging from the point of view of the latter, it would seem natural that too much attention would be paid to the condition and the intrinsic structural value of the building. Conversely, perhaps, the architect may be forgiven if, from his standpoint, he concludes that the member of the other profession often arrives at an inaccurate valuation on account of a disregard or an improper estimate of the condition of the structure. This may account for the wide difference in the opinion of auctioneers when submitting their valuations of properties to arbitrators and to the Courts. Be it understood that it is not claimed here that more unanimity would be found among architectural surveyors, but it certainly would seem that a middle course would be attended with better results. It suggests itself to me that, when the auctioneer has been instructed by the client to value a building which is for sale, the dominant factor of valuation basis is—"What would be the annual rental, and how many years' purchase would the property be worth?" It is not suggested that age, condition of repair, position, prospect, marketableness, probable improvement or depreciation in immediate surroundings, or the permanent or temporary usage of the

buildings are not taken into consideration, but does the auctioneer in such circumstances pay any serious attention to the nature of the structure, and of the defects which may—nearly always do—exist in every building?

There are two matters which govern defects in buildings—first, the material, and, secondly, the workmanship. The auctioneer, without necessarily possessing a thorough knowledge of building material, should have sufficient acquaintance with the subject to enable him to form a general opinion as to whether good and proper material has been used. If, for instance, he observes during dry weather a flank wall darker in colour than the general brickwork, and upon closer examination he finds it damp to the hand, it is quite possible that under-burnt or porous bricks, or bricks of a cheap or low quality, have been used, and he should not only look out for dampness in the interior, but realise that bricks which absorb water so readily will, when affected by the frost and sun, erode and crumble away, destroying at the same time the mortar joints. This process will go on year after year until the wall is destroyed, unless it be refaced or protected from the influences of the weather. It is apparent that such a wall must necessarily reduce the value of the building. Let us take another instance, where one building has been erected with good bricks, but laid in lime mortar of poor quality. The joints in this case will in time be affected by the wet, frost, and sun, and the walls will eventually have to be repointed in order to keep out the damp—a rather costly, dirty, and inconvenient operation. But, on the other hand, if a precisely similar building has to be erected or pointed in cement mortar, no repointing will be necessary, and the brickwork will be always dry. Surely, then, the value of the first-mentioned property (upon which money would have to be expended) has a less value than the latter building, which, as far as its outer construction is concerned, will not necessitate any expenditure. Then the valuer should be able to distinguish between lime mortar and cement mortar. This can be done by applying the point of a pocket knife to the joints, and if the point easily presses into the joints, and the material becomes disintegrated (and has a whitish appearance), it can almost certainly be concluded that a lime mortar of poor quality has been used, for if the joints be pointed in cement mortar, they become so hard and metallic that the point of the knife would make no impression upon

them. It must not be concluded from this that all lime mortar is defective. It is quite possible to procure lime which will make almost as good a bedding material as cement, but what has been said refers to the properties of the limes of average commercial quality in general use in buildings to-day. We have many existing examples of buildings, centuries old, built in lime mortar of most excellent quality, but in valuing a property of recent construction it is contended that a building erected in cement mortar possesses a higher value than a similar building, the bricks of which are laid in lime mortar. Defective workmanship is rather more difficult to discover. If the plumber has not properly flashed the roofs, the tiles not sufficiently lapped the tiles, or the bricklayer not properly formed the flues, then such defects are very soon discovered; but there are also hidden defects in workmanship, caused either wilfully or by carelessness, which are not always apparent even to an "expert" skilled in building construction; and it would be unfair to suggest that the auctioneer should commence to probe about into the unseen in an endeavour to discover defects which do not meet the eye. Time, and in some instances, perhaps, the "agreed fee," would not permit of this; but the auctioneer should be capable of casting a scrutinising eye over every part of the building, so as to satisfy himself there is nothing radically wrong, and nothing likely to affect the stability of the structure, however rough the work may be in finish. The defects most common in buildings are—Damp; settlements; minor defects affecting the comfort and health of the occupants.

DAMP.

Damp rising from the ground generally finds its way into a building from one of two causes, either by rising from the earth under the floors and thence through the joints in the floor-boards and skirtings, or by being drawn or sucked up by the porosity of the material of which the walls are composed, accelerated by the higher temperature of the rooms naturally attracting it. In the former case a layer of cement concrete 4in. to 6in. thick laid over the whole surface of the ground under the rooms is a good preventative.

In the case of damp rising up the walls, the bricks and stone used in the construction of most buildings, in addition to being capable of absorbing a considerable amount of water, have the power of capillary attraction, owing to their porosity, varying with

* Read at the ordinary meeting of the Auctioneers' Institute, February 21.

the density and weight of the brick or stone. For instance, a soft, light, under-burnt brick will absorb more water than a South Staffordshire blue facing brick. Consequently it is a great advantage to have a structure built of hard, dense bricks of stone, their power of absorption of capillary attraction being much less than that of soft material. If damp exist owing to the absence of a damp course, the lower part of the rooms on the ground floor will appear stained darker in colour, the paper will peel off, the paint will shale, or the panelling will rot, and the plaster decay. Any of these are signs of dampness. But if the foundations be not, no brick or stone in itself will prevent the damp rising and finding its way into the lower rooms. What is required is a "damp course"—that is, a layer of some material impervious to moisture, such as, for instance, one of the natural bituminous asphalt, a layer of lead, or a double course of slates bedded in cement. One can usually ascertain for himself if a damp-course has been provided, by inspecting the exterior of the property. One will observe just above the ground level, a thicker course than the general joints of the brickwork.

When damp finds its way through the outer walls to the interior of the building, the defect is due either to the porosity of the bricks or stone, bad mortar, or to the fact that, owing to the exposed position of the building, the walls are of insufficient thickness to resist damp. In such case, if the defect be so serious as to be inconvenient or detrimental to health, then it is necessary to a proper valuation to assess the cost of cementing the exterior walls, roughcasting them, or providing slate or tile hanging. If, however, the architectural treatment be such as not to allow of anything being done to the exterior, the inside of the walls can be stripped to the brickwork and rendered in Portland cement. This will exclude the damp from the rooms, but the wall itself will always remain more or less damp, as the drying agent on the inside will have ceased to exist, and, as far as the brickwork itself is concerned, its case will have been aggravated.

Dampness or wet coming through the roof is not itself a very serious matter if attended to at once, but it soon makes a great show, especially with every rainfall, through a broken or missing slate or tile will, by the absorption of the plaster ceiling, soon cover a large surface, with the result that the key of the plaster becomes broken, and—down comes the ceiling.

SETTLEMENTS.

Cracks in walls and ceilings, the distortion and subsidence of arches, and the binding of doors and windows are practical signs of settlements. Settlements are either temporary or continuous. To ascertain whether settlements are temporary or continuous, a very good plan is to fix a short length of stamp paper across the crack and note thereon the date. In the course of time, should the paper break, then it is a conclusive proof that the crack is widening, and by reinstating the paper the rate of settlement can be ascertained. If, however, for three or four months the paper remains unbroken, then it may be concluded the settlement will go no further, and the cost of cutting out the cracks, filling in, bonding, and making good can be arrived at. Temporary settlements are frequently caused by a slight unevenness in the stratum on which the weight of the building naturally takes its bearings. A somewhat similar defect in foundations may sometimes be caused by the falling in of loose earth and clay from the sides of the excavated trenches on to an otherwise good bottom. Drainage of the substrata is also a common cause of settlements in buildings.

Continuous settlements are also caused by—(1.) Unequal sinking of the foundations. (2.) Unequal settling of the stratum on which a building superimposes an unequal weight on yielding foundations, such as the solid brickwork under chimney breasts, or heavily-loaded piers, or a portion of the building carried to a greater height than the rest, the

result is, one part of the building has a tendency to sink lower than another into the ground, and cracks and fissures are the result. In such cases, the foundations under the chimney breasts and piers should be bored and put out over such an area that the same load per foot was transmitted to the foundations from all parts of the building.

It may also happen that the weight from the structure is equally distributed over the whole foundations, but that the building is erected partly on a yielding and partly on a non-yielding bottom, such, for instance, as soft clay and gravel. This class of foundation is sure to be troublesome, and settlements are almost bound to appear quickly. The only way to deal with them would be to underpin the parts on the soft clay—i.e., excavate under the existing foundations to a depth which either reaches a solid bottom or to such a depth as will justify the application being unaffected by the expansion of the winter's rain or the consequent contraction of the summer's sun. This excavation should then be filled in, either entirely with good concrete or part concrete and part brickwork, well and securely pinned or grouted up to the under side of the existing foundations. Vibration is a common cause of settlements in buildings, due sometimes to the wind, but generally by heavy traction, either in the streets or under the surface. Weakness in the superstructure is also a factor in causing settlements in buildings—such, for instance, as improper or insufficient bracing of the roof timbers, which allow them to spread, or a defect in a common upper part of the walls out of the perpendicular. Floor joists which are of insufficient strength to resist the loads and vibrations put upon them are a consequent cause of fracture in weak walls and partitions, and the plaster ceilings in such cases are a source of annoyance and expense. Although it might be somewhat difficult to assess the cost of rectifying such weakness, it should be borne in mind by him as a defect which should influence his valuation.

MINOR DEFECTS AFFECTING THE COMFORT AND HEALTH OF THE OCCUPANTS.

Builder's debris left in flues is a very frequent cause of annoyance in new buildings. Leaky pipes often cause much inconvenience. Storage cisterns in roofs and cisterns to water-closets should be examined to observe whether they are provided with proper overflow pipes, carried through the roof in the case of the latter. If all-leak valves do in course of time, the overflow pipes can carry away the leakage, and so prevent the destruction of the decorations and flooding the building from the cistern overflowing. It should also be determined whether the water service from the company's main is either protected, where necessary, by being encased in felt and placed in dead tarred boxes, or laid at a depth under the surface to prevent their being frozen. A depth of 2ft. 6in. in this country is usually found to be sufficient.

The hot-water circulation is a matter usually very lightly dealt with, and its existence is only brought to light when the tenant or owner takes possession of the property. The tenant is satisfied himself that the flow and return pipes between the boiler of the range and the circulating cylinder are of a proper size (1½ in. is a good general size), that they are laid so as to rise continually till they connect to the cylinder, and that all bends are easy or rounded (that is, that no right angles occur in any of the pipes). The circulating cylinder should be of sufficient size for the class of house in which it is supplied, and the closer the cylinder is fixed to the boiler of the range, the more rapid and successful will be the circulation, and consequently, the hotter will the water keep when once heated. If there be considerable distance between the boiler of the range and the circulating cylinder, then, for instance, when the latter is fixed on the top floor to heat the linen cupboard, the connecting pipes become long, and there is, therefore, an unnecessary length of circulating-pipes always cooling down, which very soon affects the temperature of the water after the fire

in the range has burnt out. Where a cylinder is placed within a few feet of the range, the water, when once heated, will keep hot for eight or ten hours without fire. In good work a stop-cock should be fixed in the hot-water supply adjacent to the cylinder and a draw-off at the lowest part of the return-pipe near the range, in order that when cleaning out the boiler the water in the pipes may be conveniently drawn off without interfering with the cold-water supply.

The drainage system, especially in old properties demands special attention. It may be that a new purchaser, by making a trivial alteration, will be called upon, by the local sanitary authority, to install an entirely new system—a very inconvenient and expensive surprise.

VACATION ARCHITECTURAL CLASSES AT THE UNIVERSITY, SHEFFIELD.

Soon after the formation of the Department of Architecture at the University of Sheffield it was considered advisable to organise vacation courses at places in which buildings of architectural importance could be studied by means of the making of sketches and measured drawings, and to make the Easter Course generally begin about the end of March, and lasts from a week to ten days, while the Summer Course begins about July 8, and lasts from three weeks to a month. The advantages of these courses are that permission to sketch and measure a series of important buildings is obtained, all difficulties as to the use of buildings, etc., are avoided, and that an instructor is present with the students to give such advice and guidance as may be needed. Up to the present only local students have been admitted to the courses; but it is thought that they may be of value to other students of architecture. The students make their own arrangements with regard to rooms and board, but particulars of suitable accommodation are supplied to them. The fees payable by students, other than those attending courses at this University, are 15s. for the Easter Course and £2 2s. for the Summer Course. The payment of these fees exempts the students from all charges for admission to buildings, hire of tools, etc.

Easter courses have already been held in Lincoln and Stamford, and Summer Courses in Oxford, Cambridge, and London. The Easter Course will be held in Bath this year, commencing on March 23, 1912. Permission to sketch or measure at several important buildings, including the Abbey, the Town Hall, Ralph Allen's Town House, the Ballroom of the Guildhall, and No. 24, Queen-square, has already been obtained. A visit will be paid to one of the quarries belonging to the Bath Stone Firms, and at the beginning of the course a lecture on the architecture of Bath will be given by Mr. Mowbray A. Green, F.R.I.B.A., vice-president of the Bristol Society of Architects. For the Summer Course, 1912, a sketching and measuring tour in Northamptonshire will probably be arranged. Students desirous of attending either courses should obtain an application form from the lecturer and submit it to the registrar, with the fee.

The Great Yarmouth Board of Guardians have adopted plans by Mr. A. S. Hewitt, A.R.I.B.A., of that town, for a new workshop infirmary estimated to cost £3,700.

The death took place on Sunday, at Ludlow, Shropshire, of Mr. William G. Vowles, who for nearly half a century was well known in Bristol as an organ-builder. Mr. Vowles, who was in his 87th year, was the son-in-law of Mr. J. Mendy, who was the first organ-builder, the founder of the business 98 years ago. The deceased retired some while since, and the business was turned into a company, under the name W. G. Vowles, Ltd.

Our Illustrations.

NEW HEADQUARTERS FOR THE CONSTABULARY OF THE NORTH RIDING OF YORKSHIRE, NORTH-ALLERTON.

These new headquarters for the constabulary of the North Riding of Yorkshire have been erected at Northallerton, on a site adjoining the county hall, as shown by the accompanying plans. The buildings embrace residences for the deputy chief constable, one clerk, and one married constable; quarters for single constables and recruits, cells for prisoners, weights and measures offices, stabling, etc. The walls are of local red hand-made close-kiln bricks, and the roofs are covered with green Westmorland slates. The buildings and furniture were designed by, and carried out under the supervision of, the county architect, Mr. Walter H. Brierley, F.S.A., of York. Mr. Paul Rhodes, of Leeds, was the contractor for the building.

RAINE'S FOUNDATION SCHOOL, AREFOUR SQUARE, E.

(See description and plans on pp. 304-5.)

THE PALACE EYE, WELLS. SOMERSET—BATH ABBEY, WEST FRONT.

These two sketches, by Mr. E. Garratt, of very interesting subjects, need but little description. The market-place at Wells was planned by Bishop Beckington, about 1443, and many traces of its origin can still be seen. The Pemless Porch is the other of the pair of gates leading to the Cathedral Green and Bishop's Palace. We give the latter gateway, known as the Bishop's Eye. Beckington's architecture bears his punning rebus, a flaming beacon and a tun, and the designs exhibit his taste.—The seven-light window of the west front of Bath Abbey is, of its kind, no doubt a fine example; but the most curious features of this facade, of course, are the angel ladders in the flanking turrets. These are said to represent the dream of Jacob, or, as others have urged, were intended to commemorate the vision of the founder, who was inspired to build the church by a commission from Heaven, brought by angels from on high. These figures long ago were mutilated, and are headless. More angels occur in the gable over the window, standing on corbels. The façade is dis-

tinctly a genuine termination of the building behind it. The turrets contain staircases. The tops are modern, and were lowered. The battlements are floridly treated in varied pattern of detail. Above the west portal the arms of the bishopric impaling Montague. On its responds are figures of Prior Birde and Bishop King, set under tabernacled canopies. Some say these figures represent SS. Peter and Paul, to whom the church is jointly dedicated. Both drawings formed part of the series for which Mr. Garratt was awarded the Pugin Studentship at the R.I.B.A.

NORTH WILFORD CHURCH.

This Church is to be erected at North Wilford, a thickly-populated district on the outskirts of the city of Nottingham, and is to take the place of a mission church which has ministered to the needs of the neighbourhood for the last ten years. The plans were selected by the assessor, Mr. W. D. Caroe, in a recent competition. The site is on a portion of a large area of reclaimed land in the valley of the river Trent, and known formerly as the Meadows; the natural level of the ground is about 10ft. below the street level. The small amount available, taking into consideration the foundation difficulties, for the erection of a church, viz., £6,000—necessarily kept the design simple in character. The church is planned with nave, north and south aisles, north and south transepts, choir vestry, priests' vestry, morning-chapel on the south side of the chancel, baptistery at the west end, and organ chamber over the choir vestry. The main entrances are on the north and south side at the west end of the church. Additional exit doors are placed at the east end of the north and south aisles. The heating chamber is placed under the vestries, and will be some feet below floor level. Callender's damp-proof sheeting will be used to make the chamber water-tight. The walls externally will be faced with red brick 2in. thick, with Ancaster stone dressings; the walls internally will be finished in cement stucco-faced. The arcade piers, arches, and stone dressings will be in Bath stone. The roofs will be constructed in pitch-pine and deal. The boarding of roof will be in Carolina pine and covered with hand-made, sand-faced tiles on double lathing, with an under covering of Ruberoid. The flooring under the seats and vestries, etc., will be wood block. The aisles will be tiled; the chancel, sanctuary, and baptistery will be

in black-and-white marble. The organ will be by low-pressure hot-water. The ventilation will be by fresh-air inlet panels placed in the outer walls and concealed extract ventilators in the apex of the roofs. The architects are Messrs. Ernest R. Sutton and F. W. C. Gregorv, of Bromley House, Nottingham.

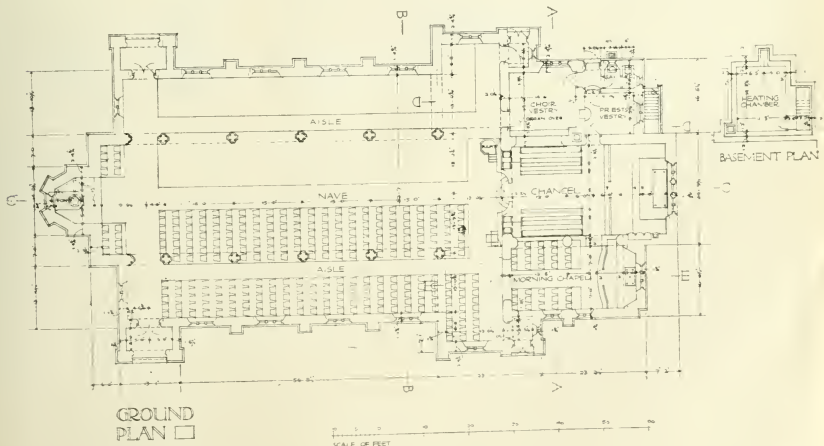
OBITUARY.

The death occurred on Saturday, at his residence, Oak Hall, Bishops Stortford, after a fortnight's illness, of Mr. George Edward Pritchett, F.S.A., F.R.I.B.A., in his eighty-eighth year. He was the son of the Rev. C. R. Pritchett, rector of Little Hallingbury, Essex, and was born in 1824 at Charterhouse, where his father was Reader. He was educated at Charterhouse, and for fifty years was architect and supervisor of the Charterhouse estates. He was the oldest Carthusian, and was present at the recent centenary banquet. Many of the ancient parish churches in Herts and Essex came under his inspection for restoration, while from 1862, when he built his first church, All Saints, Bishops Stortford, he was the architect of a large number of churches, rectories, and schools all over the country. He at one time held a commission in the old West Essex Yeomanry Cavalry, and was the oldest surviving officer of that body. The funeral took place at Little Hallingbury on Wednesday afternoon.

The stone used for the restoration of St. Saviour's Cathedral, Southwark, under Messrs. J. O. Scott and Son, was the Chilmark stone, and was supplied by Messrs. T. T. Gething, and Co., Ltd., 201, and 203, Warwick-road, Kensington, W.

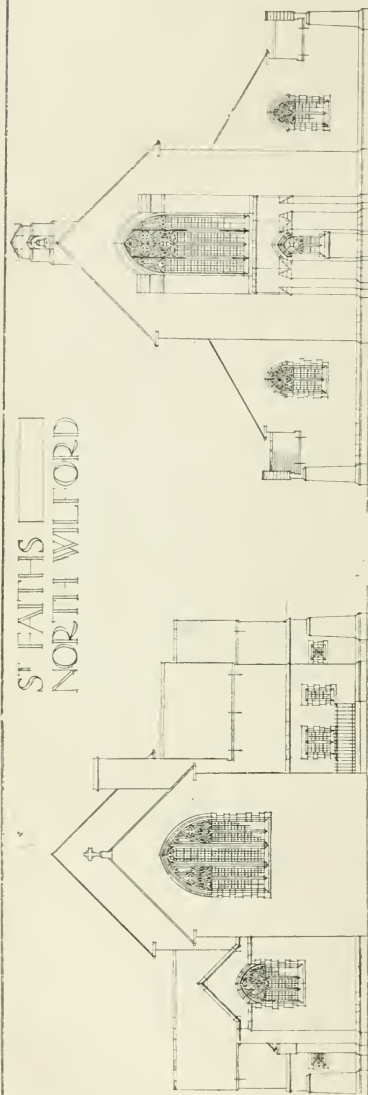
The B'hop of Winchester attended the foundation-stone laying of the Bernard Wilson Memorial Church, at Milton, Portsmouth, on Wednesday. The building will, when completed, hold between 800 and 900 people. The main portion now to be built will cost £7,500, of which £4,000 is promised.

At the next meeting of the city council of Birmingham, the finance committee will recommend the appointment of Mr. Sydney J. Lancaster, valuer to the Blackburn Union, as valuer under the corporation to the new Birmingham Union. The salary of the new post is £500 per annum. Mr. Lancaster went from West Derby, Liverpool, to Blackburn two years ago in succession to Mr. F. J. Ruddle upon the latter's appointment to a position in the Treasury Department of the Government.



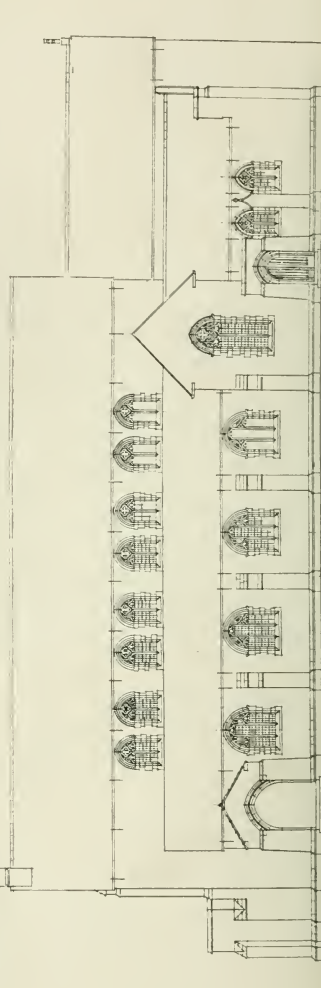
ST. FAITH'S CHURCH, NORTH WILFORD.

ST FAITHS []
NORTH WILFORD

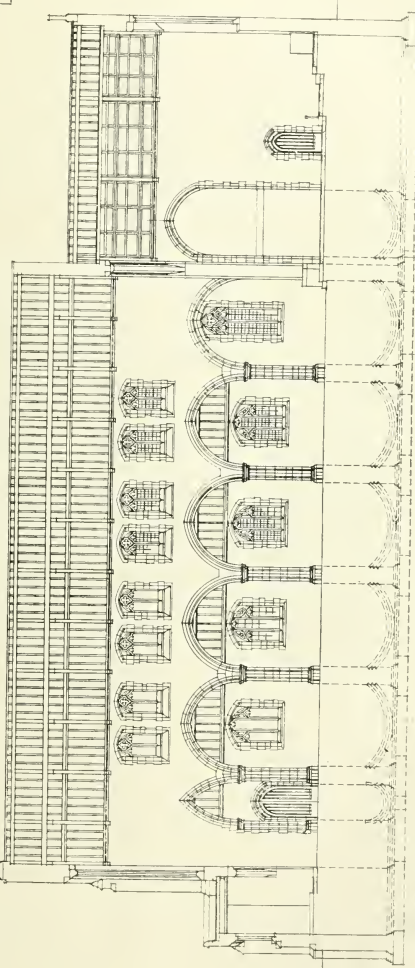
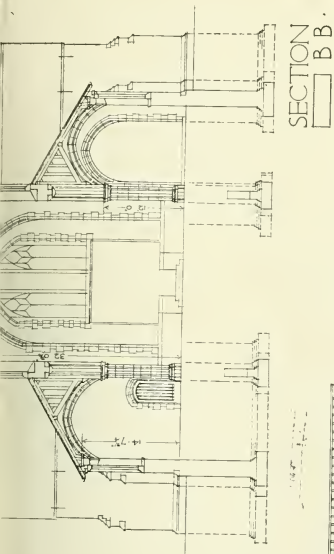
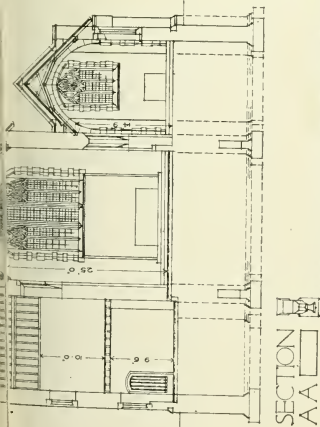


EAST []
ELEVATION

WEST []
ELEVATION

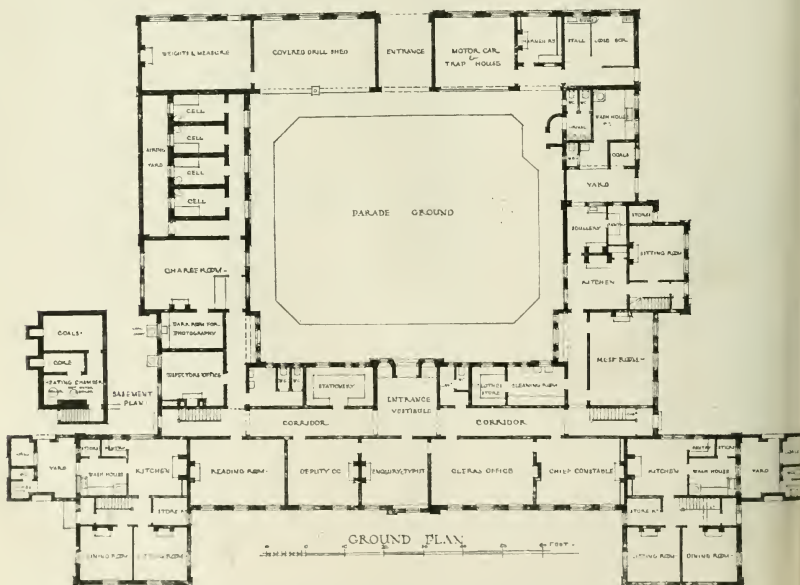
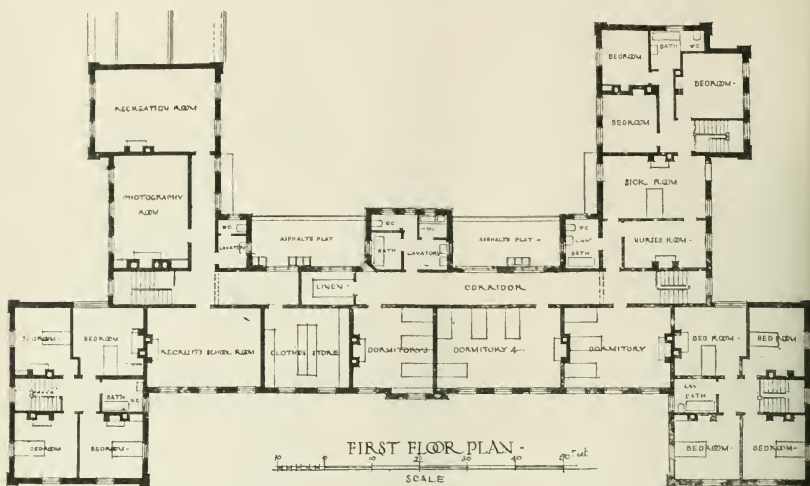


SOUTH []
ELEVATION



SCALE OF FEET
0 10 20 30 40 50 60 70 80 90 100

SELECTED DESIGN.—Messrs. SUTTON and GREGORY, Architects.



NEW HEADQUARTERS FOR THE CONSTABULARY OF THE NORTH RIDING OF YORKSHIRE.
Mr. WALTER H. BRIERLEY, F.S.A., Architect.

THE TENDENCY TOWARDS UNIFORMITY IN COMPENSATION FOR AGRICULTURAL IMPROVEMENTS.*

By LESLIE S. WOOD, F.S.I.

To treat of the subject of agricultural customs, and to lay down any principles as to uniformity, needs a brave heart. But as the time has very rarely been for a discussion on the subject, and there is no real place for such a discussion than within these walls, it is hoped that, while you do not spare your criticism, you will realise that we are dealing with a very complex subject, and that the main object to be achieved in this paper is to point out various aspects of a difficult problem with the hope that a free discussion will lead to a clearer understanding of it, and help in some measure the movement on foot to bring about uniformity in farm valuations. We must be very clear in our minds in the first place that there is a difference between custom pure and simple and modern customary payments. In custom, as far as we can tell from the evidence, we have all started from a common origin, and the great variations we have now are developments from the original conditions, proceeding upon normal and recognisable lines. Uniformity in custom could only be attainable by reducing all customs to their original form. We have had, and there probably are still advocates of this at the present day, but we shall see how far this is possible. Customary payments, on the other hand, are almost entirely arbitrary bases for compensation fixed at the will of valuers' associations and similar bodies, in order to deal with the demand for payment for the increased value of manures and feeding stuffs. The agitation for this arose in the earlier half of last century, and culminated in the Agricultural Holdings Act, 1875, although it did not receive universal attention until the passing of the Agricultural Holdings Act, 1883. These bases fixed arbitrarily can, in the same way, be altered arbitrarily, and if all the valuers' associations can agree upon the best scale of compensation, there is no reason why it should not be generally adopted. At the present moment attention is more particularly riveted on the adoption of uniform scales of compensation for feeding-stuffs and manures. But before we deal with that it is well to look at the old original custom, because that, after all, is the structure upon which everything else is built, and it has, in some cases, been bearing upon the application of our comparatively new methods of compensation. It is difficult to give a definition of true custom. Cooke states that "the custom of the country is the common law of agriculture." But this definition, although it is safe and probably correct, is not satisfying, because the word "custom" is not satisfying, and the idea that it is immutable, and, consequently, there are many men who will not admit that a custom can change. They are of opinion that the varying customs, as we have them to-day, are in their original form, and in that form they must be continued for all ages to come. At the same time there is no question whatever that the customs have changed, and still are changing, and, consequently, it is interesting to consider with this definition his further words, "Custom . . . so far, at least, as to government, of course of good husbandry, is not that immutable, unvarying, certain, and reasonable general usage, which is known to the law as a custom." We compared the same author in 1850, when he wrote of the customs of that time with those published in 1828, to confirm the fact that agricultural customs had changed, and Messrs. Kennedy and Grainger, writing in 1828 of the customs in the Home Counties, noted the high valuations, said: "None of them have any pretensions to antiquity." If we go back to one fifty years prior to the work of Kennedy and Grainger, say 1775, we reach the limit of our definite knowledge, and no agricultural work as far as I know, and no law case, throws any appreciable light upon the

subject. It is, therefore, necessary to construct a theory, and from the evidence we have by comparing the changes of custom over a period of nearly a hundred years, or by showing the variations on maps, I have come to the conclusion, with very good reason, that in the olden days, some time prior to the limit of 135 years, it was customary for tenants of farms to remain in their holdings after the expiration of their term and consume the hay, straw, and the beasts, and feed or tread the straw into dung, and leave it all for the income without any payment whatever. There were, in fact, no valuations in those days, and no valuers, as Cooke describes them, "audacious in fabricating claims." This holding over in order to feed and convert the hay and straw necessitated a dual occupation of the house and buildings, besides some of the grass land, and caused an inconvenience which could only be remedied by a farm valuation. By this was determined the sum that an incomer should pay to the outgoing in order to enter into immediate possession of the house, buildings, and land other than stackyard, and the corn was not threshed. Now, what was the value of the value? He simply had to estimate what the outgoing tenant would lose if he went out at the end of the tenancy instead of holding over to feed and consume his hay and straw. In effect the tenant lost, and the value had to estimate the feeding value of the hay and the consuming value of the straw; the manure—that is to say, the manurial value of these two—had to be left free of charge. This is the position of the present time over the greater part of England, and this, I submit, is the original custom, in its simplest form, and if we are to attempt any uniformity in custom, we must work back towards this original form. In those early days, apparently, it was not found a difficult matter to decide upon a basis for the feeding value of hay, for there is very little variation in method anywhere now-a-days. The price is always taken as the basis, and often the feeding value is reckoned at two-thirds of the market price; but in some counties it is fixed by the Valuation Association year by year, according to the price of hay. But when we come to straw we find that there is considerable variation. In some districts it is a fixed proportion of the market price, in others it is a price per load, which price is very little year by year; in many counties it is estimated at a price per acre, with but slight variation; and, again, in three or four counties it is reckoned at a fixed sum per quarter threshed, or, if the incomer do the threshing, and clean and carry the corn to market, it is considered as equivalent, and the straw passes without payment. All these apparently different customs are only several forms of the same elementary custom, so it would be no insuperable difficulty to transform them all into one method, if the Central Association were to agree upon the best method. Of course, if the system of valuation were changed, there would always have been tenants, who would point out that they had lost material in the process, because a good or bad straw year just made a difference whether their old system favoured them or not. But averaging the weather and the straw crops, the chances of a tenant gaining or losing under a uniform system would be about even.

Now, the variations in customs had gone no further than this, we should have no trouble in fixing a uniform method of valuation; but, unfortunately, in some parts of the country the basis of valuation has been extended, so that the tenant has a larger stake in the land, and it would be impossible to reduce these to uniformity, unless the landowners bought up these extended interests, or all tenancies were endowed with them as of right by custom; but this is impossible. But we will see how far it is possible. The three chief additional interests that tenants have acquired in some counties are:—(1) The feeding value of the straw consumed and manures used on the land; and (2) the manurial value of the straw, this, combined with the existing rights in it, made up the market value. When the hay and straw are valued at market price it is only natural for the dung to pass in the

same way. But it is very difficult to say how the tenants acquired this interest in the dung in districts where the straw passed at a consuming price. Possibly the evidence of Mr. Boniface before the Select Committee on Agricultural Customs in 1858 throws some light on it, when he says, in speaking of the custom of compensating for improvements, "I could not state that these allowances have become the custom; still, it is proper I should explain that they are daily themselves gaining ground; that in arrangements that are made between the landlord and the outgoing tenant, the tenant has generally considerable capital on his farm, he generally the means, with the consent of his landlord, of making a fair arrangement with the incoming tenant that he shall be paid for the beneficial interest left on the farm." And, again, the words of Mr. Barnes, who speaks of compensation for drainage on the same occasion, are of interest when he says, "I have had it [i.e., a claim for drainage] disputed in many instances, and lost if the tenant did not pay for it on entering, and had no agreement to be paid upon leaving; but if left to ourselves as valuers we always charge the incoming tenant for the work, very probable that payment for the work were made, as these gentlemen show, over sixty years ago, simply as an arrangement between outgoing and incoming tenants, with or without the consent of the landlord, and, having once obtained a footing in the inventory, were continued as a matter of right in succeeding changes. The payment for dung could only be abolished, for the sake of uniformity, by the landowners purchasing it at its crude value, without any cake or corn, say, at 2s. 6d. per load. Such a suggestion is not altogether unprecedented, because the liability for payment for half-manures was at one time largely bought up by landowners, so as to reduce the cost of entry into farms; at the same time, it would not be a very popular movement with landowners at the present time. The second of the interests acquired by tenants as mentioned has been the residual value of feeding stuffs consumed by the manures used on the land. We shall deal with this in passing, it is of interest to notice that in the case of feeding stuffs we have an example of an interest secured by legislation. The payment already existed by custom in some parts of England, so that the legislation brought all farm tenancies up to the same level in that respect. It threw an increased and immediate liability upon the tenant, and he has undoubtedly shared in the benefit accruing to the tenant by reason of the improved farming due to a sense of greater security. The last of the three interests is that which gave tenants the full market value of their hay and straw, and following from this the market value of the dung. It is this custom that is the permanent stumbling-block to uniform custom. We could probably deal with all other difficulties, but the custom of market value has arisen as a matter of natural convenience, and even if it were reduced by substantial payments to a consuming price the conditions are such that we should gradually find the value of the dung coming to the market price before long. Market price, in fact, has entirely arisen round London and the large towns, especially in Lancashire and the West Riding of Yorkshire. There are a few exceptions where farms have been in hand and relief for the benefit of the owner at a market price; but otherwise the higher value has arisen by reason of the demand for hay and straw in the large industrial centres. It has been found necessary to give facilities to tenants for selling off hay and straw, and such being the case a valuation on that basis has been found the most satisfactory. It is of interest to mention how the market price gradually extends its boundaries. In Buckinghamshire the hay and straw were at one time taken at a consuming price, but at the present time meadow hay and wheat straw are more often at market price in the south.

(To be continued.)

Read at the Ordinary General Meeting of the Surveyors' Institution, held on Monday, Feb. 26, 1912.

Mr. Egbert Rnshon has resigned his position as surveyor to the Corporation of Urban District Council on account of ill-health.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—On Friday last, Messrs. H. V. Ashley and Winton Newman gave a talk to the members about the Birmingham Council House Extension, of which they are the architects. Mr. Ashley said it was interesting to note that the plans in the second competition had been very little altered. The site was practically four-square. On the east front was the Education department, consisting of four floors of innumerable offices; on the south front and in the interior of the east was the Gas department, and on the west front, including three floors, were the offices of the Health and Tramways departments, both of which had already outgrown their new quarters since the extension of the city. On the first floor, over the Gas department, were the new picture galleries, and on the second floor of Congreve-street the Natural History museums, both approached from the present Round Room over the new bridge across Edmund-street. The completion of the extension on the north side was now in hand, and would give further accommodation for the Tramways, Health, and Gas departments, including, in addition, further picture galleries and museums for the upper floors, with a special entrance devoted to the new picture galleries. Each of these departments was self-contained—each had its own main entrance and staircase, and at the same time there was easy access between the departments. He expected they would be told the construction was a little old-fashioned, and was very little genuine reinforced concrete construction, but he hoped them to believe that buildings of this nature were not entirely suitable to this method of building, owing to the alterations required from time to time. Reinforced concrete in floors and roofs was of necessity monolithic, and while it was no difficult thing to cut out a beam with an R.S.J. in it, it seemed to him another matter to cut out a beam of concrete work with the same ease. Externally on the street frontages the buildings were faced—to the upper ground-floor level—with Aberdeen granite, heavily rusticated, with Darley Dale stone for the remainder of the facades. This was instead of Portland stone, which they would find very hard to be permitted to use. The Margaret-street porch was the only place where there was any Portland stone. In the semi-domed porches to Congreve-street and Edmund-street Hopton Wood stone, with Greek Cypollino marble columns and bronze caps and bases, had been used. The courtyards internally were faced with white glazed bricks, with salt glazed dado and bands, etc., accentuating the features. Internally the finishings were of a very simple character. The heating of the building was by low-pressure hot water mechanically circulated. The ventilation was generally for the offices by means of extractors in the rooms, into ducts over the corridors, with upcast shafts at intervals, finishing at the top with fan chimneys. As to the lavatories or hand-enclosed, attending modern building methods, it seemed to him one difficulty was the want of pulling together, as it were, at times, of the many apparently inevitable sub-contractors. Too often they did not care one whit for their neighbours, and to blame the other man always appeared to be sufficient excuse. Mr. Winton Newman proposed a vote of thanks to the architects. Referring to the bridge in Edmund-street, he said the disciples of Ruskin were down on it and all sorts of criticisms had been passed on that part of the structure. Personally, however, he did not care at all that the bridge was outside, so long as it was beautiful. He would assure them that they had in it one of the most charming entrances to any art gallery he was acquainted with. As to the galleries themselves, they were beautifully lighted, well-proportioned, and free from bric-a-brac ornament, which was nothing but a trap for dust, and distracted attention from the works of art on the walls. The motion having been carried with applause, Mr. Newman replied, and defended the bridge as supplying a

stone connection between the old and the new buildings.

GLASGOW TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY.—At a meeting on February 23, Mr. James S. Boyd presiding, Mr. James Muir lectured on the management of building contracts, stating that a business and architectural training was absolutely necessary to the contractor who was entrusted with difficult and costly works. The lecturer also dealt with the terms laid down in schedules, the pricing of quantities, adjustment of claims for extras, etc.

THE LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting of the society was held on Thursday, February 22, the president, Mr. Sydney D. Lloyd, in the chair. The feature of the evening was an exhibition of drawings from the Liverpool School of Architecture, and Professor C. H. Reilly, M.A., A.R.I.B.A., gave an informal lecture on the methods of the school.

NORTHAMPTON ARCHITECTURAL SOCIETY.—The annual meeting of the Architectural and Archaeological Society for the Archæological societies of Northampton and Oakham was held in the Masonic Hall, Northampton, on Saturday afternoon, last week. The Rev. A. W. Pulteney presided. The committee's sixty-sixth annual report was presented by Mr. C. A. Markham. The society had lost four members by death during the year, six members had resigned, and twenty-one new members had been elected. The total roll of members was now over five hundred. Subsequently Mr. Henry F. Traylor, A.R.I.B.A., Stamford, gave an interesting lecture, illustrated by lantern slides, on "The Architecture of Stamford."

COMPETITIONS.

BIRKENHEAD.—A limited number of architects were invited by the committee to send in competitive designs for the new Presbyterian church hall, schools, and classrooms, North-road, Birkenhead. The design placed first is by Messrs. Green, Knowles, and Russell, 19, South John-street, Liverpool, who have been appointed architects. The cost of the buildings is to be about £2,700.

BOLTON INFIRMARY: NURSES' HOME.—Mr. John B. Gass, F.R.I.B.A., the assessor, has issued his award as follows:—First premium, £30, Messrs. Henderson and Brown; second premium, £20, Messrs. Marshall Robinson, Son, and Wheeler; third premium, £10, Messrs. T. E. Smith and Son. The competition was confined to architects practising in Bolton, and the estimated cost of the work is £8,700. Eleven designs were submitted, and are on view to-day (Friday) in the town-hall.

Huddersfield.—Alderman C. Smith, chairman of the Huddersfield Corporation housing and town-planning committee, has received a letter from Mr. W. P. Raynor, of Richmond, Huddersfield, offering on behalf of himself and some friends to give £100 to be devoted to prize money for the best scheme plan of town planning, and is applicable to the needs of Huddersfield.

SCOTTISH NATIONAL MEMORIAL TO THE LATE MAJESTY KING EDWARD VII.—It has been decided that the memorial is to be placed in Edinburgh, and, subject to the approval of his Majesty King George V., it is to be associated with the palace of Holyrood, in the form of a suitable memorial erected in or near the palace grounds, with appropriate public access. A number of architects in Scotland have been invited to send designs for the proposed memorial, and the following gentlemen have accepted this invitation, viz.:—Sir Robert S. Lorimer, R.S.A., F.R.I.B.A., Edinburgh; Mr. G. Washington Browne, R.S.A., Edinburgh; Mr. Hippolyte J. Blane, R.S.A., F.R.I.B.A., Edinburgh; Mr. John J. Burns, LL.D., A.R.S.A., F.R.I.B.A., Glasgow; Mr. Henry E. Clifford, F.R.I.B.A., Glasgow; and Mr. Robert J. Macbeth, F.R.I.B.A., Inverness. It is left

to competitors to suggest a site in the neighbourhood of Holyrood, and also the form that the memorial may take, but it is desirable that it should include a statue or other personal representation of his late Majesty. The designs submitted are to be illustrated by a model and drawings, and these are to be lodged with the town clerk of Edinburgh by March 30 next.

Building Intelligence.

KNOWLE, WARWICKSHIRE.—The 15th century guildhall was reopened on Saturday by the Bishop of Birmingham as a church-house. The edifice is situated in the centre of the village and close to the old church. Founded as a guild as far back as 1412, it degenerated into a draper's shop; but now it has been rescued by an anonymous donor for the use of parochial organisations. On the ground floor of the half-timbered building, which has been renovated under the supervision of Mr. W. H. Bidlake, M.A., A.R.I.B.A., of Waterloo Chambers, Birmingham, is one large room, the roof being supported by massive caken pillars, which it has not been necessary to renew. The lower floors have been panelled in dark oak. At the gable end of the interior is a magnificent old fireplace, above which has been placed a replica in stone of the seal of the founder, Walter Cook.

LIVERPOOL.—The Chancellor of the Exchequer received last week an influential deputation from Liverpool, who earnestly commended to his acceptance the scheme for the erection of a new Liverpool Custom House on the old George's Dock site at the Pierhead, between the new Docks Offices and the Liver Buildings. The present Custom House in Canning place was built eighty years ago, is inadequate to its purposes, and occupies an inconvenient site far removed from the business centre of the city. Some designs for the proposed new buildings have been prepared by Messrs. C. Clegg and Son, architects, of Manchester.

WATER SUPPLY AND SANITARY MATTERS.

HEREFORD.—The new filter-beds at the Hereford waterworks have been connected up with the city mains, which cost £7,000, has been carried out by Mr. George Law, of Kidderminster. The construction of the bed is of concrete, bitumen lined, and faced with local brick. Local labour has been employed in the washing and filling in of the filtering materials, together with the laying of the mains. It is hoped that the second bed will be ready for use towards the end of May. The filtering materials consist of 6in. fine local sand, 6in. fine (washed) sand, 1ft. of loam, 6in. of sand, 6in. gravel, 6in. of peats and benses, 9in. rough gravel, and 9in. rubble obtained from the Colwall Park Quarries. The area of the new bed is 600 square feet each, and they will relieve the present filtration area. An automatic float-bed will be provided at each inlet to the filters, showing the rate of filtration in each case. The work has been carried out from plans by Mr. W. Parker, Surveyor, the clerk of works being Mr. A. W. Jakeway.

The King who will be accompanied by the Queen, will open the London Museum, Kensington Palace, on March 21.

In connection with the proposed improvement of the frontage line of premises in High Holborn, the Holborn Emporium, an interested party has given consideration to a proposal of the London County Council that it should contribute to a scheme for the widening of High Holborn between the Holborn Empire Theatre and the Inns of Court Hotel.

Mr. Henry Izagola Sanders, builder and contractor of Northampton, and mayor of that borough in 1902, has died at his residence in Cranleigh, Bitterne Park, Southampton, aged 74 years. At the inquest it was stated that deceased had no account of unduly long illness, and that his death resulted from an over-dose of morphia taken to alleviate sleeplessness and acute pain. A verdict of "Death from misadventure" had been returned. Deceased leaves a wife, Mrs. Izagola Sanders, an architect, of Portland-street, Southampton, and Mr. G. S. Sanders, barrister.

Correspondence.

THE POLICY OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—In last week's issue of the BUILDING NEWS I observed a statement in a letter from one of your readers which suggested that the publication of the report of the special general meeting of the Royal Institute, on January 8, had been delayed by the Society of Architects refusing to sanction its appearance. I shall be much obliged if you will allow me to correct this statement. The Society of Architects never refused to sanction the publication, and they were not responsible for any delay in the matter.—Yours faithfully, IAN MACALISTER.

9, Conduit-street, W. Feb. 29.

Intercommunication.

We award the guinea to Mr. Frank Wilson, 225, Nottingham-street, Sheffield.

QUESTIONS.

[12090].—LEADED LIGHTS.—In leaded lights with steel cires, is there any deleterious action set up between the two metals whereby their use is not to be recommended?—Edgar Simmons.

[12091].—DAMP THROUGH ASPHALTE-CONCRETE ROOF.—In August of last year I erected a warehouse 20ft. square and 9ft. high. The roof was cement concrete 5in. thick, covered with asphalt. The asphalt was put on within a week of the fixing of the concrete. While the hot weather lasted signs of damp were noticed; but now, in certain conditions of the atmosphere, the ceiling and upper part of walls are soaking wet, with drops all over the ceiling. My own opinion is that it is the sweating from the concrete; but as it is so persistent, and comes in such large quantities, I am anxious, for my client's sake, to minimise the annoyance as much as possible. I may say the method of heating is a column gas radiator. Is there a quick and economical method of getting the water out? I am afraid that if the coming summer is anything like last, the sun will draw up the water to the asphalt, and suspend it there till next winter, when the present difficulty will be repeated. Would coke fires drive the moisture in the concrete upwards to the asphalt instead of drawing it down to the ceiling?—Jamp.

REPLIES.

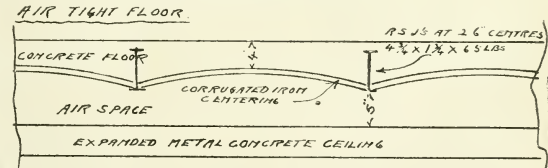
[12089].—AIR-TIGHT FLOOR.—I would suggest that the air-bricks be built in sand, and after the ceiling is finished and set, a 5in. layer of sand be spread over it, the concrete floor being laid on this as a centering. After setting, remove the air-bricks as required, and introduce a fairly strong vacuum cleaner nozzle, and suck out the sand, afterwards setting the air-bricks in cement. The cleaners may be hired in most towns, and as air-bricks are on both sides of the building, all portions can be readily got at.—F. Dyer, F.A.S.I., 70, Lindsey-street, Hrogate, York.

[12089].—AIR-TIGHT FLOOR.—There would be practical difficulties in the carrying out of the suggestions named in last week's inquiry, especially if the proposed floors are being inserted in an existing building. Four methods are herewith illustrated showing means of dealing with the problem. The first suggestion is to widen the space between the floors and interpose a hay-loft. The second method is to fix four 6in. by 3in. by 12in. R.S.J.'s at 3ft. centres, and having 4in. wall-hold at each end, and form arched centering for the concrete floor with expanded lath or metal, filling in the floor with coarse material at first, and finishing off with finer stuff at top. The third and fourth methods show the use of agricultural drain-pipes and expanded metal laid over them.—Frank Wilson, 225, Nottingham-street, Sheffield.

[12089].—AIR-TIGHT FLOOR.—The floor in question would certainly not be "air-tight." Concrete is a porous material, and no amount of air-space would ensure the dormitory against penetration of smell, and should never be done if it can possibly be avoided. If the smell does not get through the floor, it will through the windows. The by-law that the local authorities seem to be working on, insisting on air-space in the floor, evidently was framed in days when "framed" and "double-framed" floors were used. It does not appear to me to be applicable

to such a case as mentioned in question could be done, of course. Piers of brickwork could be carried up, and the spaces left between them for pulling out the centering afterwards. Why not use ordinary centering nailed together like a drawing-board? In any case, it looks quite as well to ventilate the place under the floor as in the floor, and much easier. Hollow floors harbour vermin.—S. Douglas Meadows, Town Hall, East Ham.

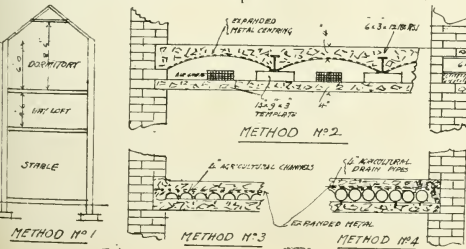
[12089].—AIR-TIGHT FLOOR.—As, owing to the



able to solid floors of this nature. A suggestion is made in sketch which is, I think, the best thing to

peculiar requirements of this case, temporary centering is very awkward to deal with, one naturally turns to something permanent. I would suggest the use of small rolled steel joists at 2ft. 6in. centres, carrying a permanent center of curved galvanised corrugated iron sheeting. With a load of 12wt. per foot super., each joist would have to carry about 11 tons. A 4in. by 12in. rolled steel joist of British Standard section, and weighing 6.5lb. per foot run, will carry 1.85 tons over a 10ft. span, and should therefore be used. Dealing with cost, one has to consider the cost of R.S.J.'s and the corrugated iron against the reinforcement and the proposed lower floor or ceiling to loose-holes, while doing so as to avoid subsequent trouble from condensation. As alternative method, I would mention the use of trellis laths, similar to those used for fireproof floors.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

Mr. J. J. Hannigan, of Ballybofey, Co. Donegal, has been appointed county surveyor of Monaghan at a salary of £400 per annum.



LEGAL INTELLIGENCE.

COMPETENCY OF AN ARBITRATOR.—SIR JOHN AIRD AND CO. V. BRISTOL CORPORATION.—In the Court of Appeal on Monday, before Lords Justices of Appeal, Viscount Finlay, Lord Macnaghten, Lord Buckley, Lord Macmillan, and Lord Kennedy, judgment was given in an appeal by the Bristol Corporation, which was engineer, Mr. W. W. Squire, M.Inst.C.E., could validly act as arbitrator in a dispute which had arisen under a contract entered into between the plaintiff company and the defendant corporation for the construction of large docks at Avonmouth. The contract provided that all differences which might arise should be referred to the engineer, who had the right to enter into the subject matter of such dispute with or without formality, reference, or notice to the contractor or corporation. The value of the work done and materials supplied under the contract was £1,923,977 9s. 4d., in respect of which the defendants had paid £1,732,761 10s. 11d., and the action was brought by the plaintiffs to recover the balance—namely, £171,215 18s. 5d.—and damages for breach of contract. There had been references, and the corporation desired that these should be decided by arbitration before its engineer. The contractors objected, and claimed the right to have the matter decided in an action. They said that, owing to certain events after the contract was executed, the engineer was not a fit and proper person to sit as arbitrator, because he would really be called upon to adjudicate upon the conduct and the reasonableness of his own conduct, and could not therefore properly decide the questions at issue. Mr. Justice Sutton, at Chambers, made an order staying the arbitration. From that order the corporation appealed, and the arguments were heard on several days, and at the close of Sir Robert Finlay's reply the Court gave judgment unanimously dismissing the appeal. As charges of moral misconduct had been imputed to the arbitrator by the contractors, the Court was ordered to pay certain costs in the Court below.

A NUNCEATON ARBITRATION.—The award of the arbitrator (Mr. Hutchinson, K.C.), in the matter of Stanley Brothers (Ltd.) v. Nunceaton Town Council has been received, and was in favour of the council on every point. The dispute arose out of the price of water supplied from the council's mains to plaintiff's works, it being alleged that a sum of £2,300 had been overpaid. The case extended over four days.

COVENTRY ARBITRATION AWARD.—The Right Hon. Alfred Lyttelton, M.P., the arbitrator appointed to determine the amount to be paid by the Coventry Corporation for the compulsory purchase of the undertaking of the Coventry Electric Tramways Company, has issued his award. The arbitration proceedings took place last month. The undertaking was valued by the company's witnesses at over £500,000. The arbitrator has decided that the corporation shall pay to the company a sum of £122,322 as the value of the undertaking, and shall also pay the costs of the company and of the arbitration.

TRADE NOTES.

Mr. H. Ascongh Chapman, F.R.I.B.A., architect, Leeds, is removing to Canthelph-road, Bexhill-on-Sea.

Under the direction of Mr. Alfred Bradburn, architect, Bristol, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" and air-inlets, has been applied to the theatre, Weston-super-Mare.

The workhouse infirmary, Newton Abbot, is being supplied with Shorland's double-fronted patent Manchester stoves with descending smoke flues, and patent Manchester grates by Messrs. E. H. Jackson and Brother, Ltd., of Fallowfield, Manchester.

A set of postcards in colours has just been issued by the Great Central Railway illustrating their fleet of steamers, which maintain the services between Grimsby and Hamburg, Rotterdam, and Antwerp. The colouring of the various ships has been so artistically selected as to make the set the finest we have seen for some time. The packet of six cards is sold for the nominal sum of 2d., and can be obtained post free for 3d. from Publicity Dept., 216, Marylebone-road, N.W.

Mr. Walter Augustus Ducat, late engineering inspector to the Local Government Board, has died at his residence The Cedars, East Dulwich, aged 50 years.

Mr. M. Neidheiser, chief engineer and secretary irrigation, United Provinces, has been selected to fill the appointment of inspector-general of irrigation on the retirement of Sir John Bontion in March next.

Our Office Table.

The London County Council received on Tuesday a return for 1910 from the Housing of the Working Classes Committee, showing that 23,779 rooms in working-class dwellings were provided in London and Greater London, and 4,266 rooms were demolished, making a net addition of 20,911 rooms. The great bulk of the new accommodation was furnished in the outer districts. In Central London, an area comprising the City, Westminster, Holborn, Finsbury, Shoreditch, Bethnal Green, Marylebone, Stepney, Bermondsey, and Southwark, no demolition is proceeding at a greater pace than building. The rest of the county showed a net addition of 3,932 rooms. Average weekly rentals have remained about the same for several years. For the central area the figure is 3s. 1d. per room, for the rest of London proper 2s. 7½d., and for the surrounding districts 2s. 1½d.

To save the façade of the Old Town Hall and Free Library in King-street, Manchester, as suggested by Mr. Edgar Wood, F.R.I.B.A., president of the Manchester Society of Architects, a sum of £650 is required to be raised by public subscription. This is half the sum which it will cost to remove the façade and re-erect it in one of the Manchester public parks; Platt Fields has been mentioned in this connection. The more ambitious scheme—to re-erect the façade together with the covered loggia—would require the raising by public subscription of £1,150. In either case the corporation has agreed to pay half the cost. The subscriptions already received exceed £300.

Mr. Frank O. Salisbury has just completed a canvas 18ft. in height by 12ft. wide, as one of the four-and-twenty panels for the decoration of the internal court of the Royal Academy, Mr. Salisbury's picture, which is to be placed next to that by Lord Leighton, represents Alfred the Great rebuilding the walls of the city after their demolition by the Danes, c. 875, an incident recorded in Asser's "Life of Alfred." The masons are at work upon the dilapidated Roman wall. The architect and his assistants are there, under an awning of rough masonry covered with hides, and the King, arriving upon the scene with his warriors, reins up his black-and-white steed, covered with a Polar bear skin, and the architect is seen holding in his hand a Commission from Ethelred, whom Alfred made Governor of London, while with his right hand he is pointing to the old Roman plan of the city walls. The King's robe is freely ornamented with gold, and his short hair of the mane of his steed is plaited with gold, after the fashion depicted in Saxon manuscripts. On the right of the picture is shown the raven standard that Alfred captured from the Danes, and on the left, among the spearheads of the warriors is seen a royal puppet attached to a fighting man's standard. In the foreground are a pair of deerhounds in a leash, typifying the King's love of hunting.

The *Eastern Morning News* annual review of "The Trade of Hull and the Humber Ports," which has now reached its sixteenth year of publication, contains complete and comprehensive reports of the past year's trade at Hull, Grimsby, Goole, and the manufacturing district around. The special features are the statistical tables showing the shipping tonnage, imports and exports for the year and the preceding ten years, freight fixtures, Humber shipbuilding output, local railway and dock schemes and facilities, etc., etc. It is again published at the popular price of one penny for 124 quarto pages; but, owing to the absurdly anomalous Post Office regulations, costs 2½d. sent through the post. It can be had from the *Eastern Morning News* office, Whitefriargate, Hull.

By a regrettable error, in our report of his paper last week, Mr. George P. Bankart's name was spelt with a superfluous "h." We may mention, for the benefit of more than one correspondent, that the specimens of his work referred to are to be seen at his work-

shop, Baldwin's Gardens, Gray's Inn-road, W.C., and that all interested in the material he uses will be gratified by the results they will see there. The other way the field for the employment of really high-class durable plaster-work is broadening daily, and the method used by Mr. Bankart is doing much to lend it additional and legitimate impetus.

The Saskatchewan Association of Architects has been organised under an Act passed at the last session of the Legislature. The result of this will be that "after the expiration of six months it shall be unlawful for any person to build a complete scheme of registration in Saskatchewan under the provisions of the above Act, to advertise or put out any sign, card, or other device for the purpose of indicating to the public that he is entitled to practise as an architect." After six months from the period of the Act all persons wishing to practise architecture will have to pass the different examinations as called for by the Act, but any person who was practising in Saskatchewan on March 23, 1911, may be registered under the Act within six months by paying the registration fee. The first council has been appointed by the Lieutenant-General in Council as follows:—President, Mr. F. Chapman (Clemesha, Regina); first vice-president, Mr. W. W. Le Chance, Saskatoon; second vice-president, Mr. R. G. Bunyard, Moose Jaw; secretary-treasurer, Mr. W. G. Van Emdon, Regina. Committee: Professor A. R. Greig, Saskatoon; Mr. W. R. Reilly, Regina; Mr. Norman L. Thompson, Saskatoon. A meeting of the council as above constituted was held in Regina on September 11, 1911, and by-laws, code of ethics, and competition regulations were drawn up and adopted. The by-laws of the association were approved by an Order-in-Council passed under date of January 15, 1912.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—A.A. Students' Dinner. Pagani's Restaurant, Piccadilly.

Glasgow Architectural Craftsman's Society. "Various Timbers and their Practical Uses," by Robert Moon, 8 p.m.

SATURDAY (TO-MORROW).—Architectural Association. Visit to Churches and Institute, Hampstead Garden Suburb.

MONDAY.—Royal Institute of British Architects. General meeting to elect Mr. Basil Champneys as Royal Gold Medalist, 8 p.m. Subsequent Business Meeting to consider resolutions by Mr. Howard J. Bonner, F.R.I.B.A., and Mr. Sydney Perks, F.R.I.B.A. (given in our report elsewhere), 8 p.m.

Society of Engineers. The Trolley Vehicle System of Railless Traction," by Henry C. Adams, 7.30 p.m.

Liverpool Society. Paper by J. J. Burnett, LL.D., F.R.I.B.A.

WEDNESDAY.—Institution of Municipal Engineers. Discussion on "Methods of Inviting Public Tenders," 30, Victoria-street, S.W. 7 p.m.

Royal Society of Arts. "Some Modern Problems of Illumination: The Measurement and Comparison of Light Sources," by T. Thorne Baker, 8 p.m.

Glasgow Institute of Architects. Annual Meeting. Edinburgh Architectural Association. "Comparisons of Styles in English Interiors," by Mrs. E. M. E. of Edinburgh College of Art, 8 p.m.

THURSDAY.—Society of Architects. "The Testime of Materials," by A. Alban H. Scott, 28, Bedford-square, 8 p.m.

Cardiff and South Wales Architectural Society. Italian Architecture, by Edwin Seward, 8 p.m.

Leeds and Yorkshire Architectural Society. Scottish Architecture, by Lawrence Wood, 8 p.m.

FRIDAY (MARCH 9).—Birmingham Architectural Association. "Notes on Some Architects of the Stuart Period," by Mervyn Macgregor, 8 p.m.

Leicester and Leicestershire Society of Architects. Metalwork," by Lawrence Wood, 8 p.m.

The members of the Heywood Municipal Officers' Association met in the mayor's parlour on Thursday to present a silver rose-bowl to Mr. J. Ainsworth, Secy., M.L.A. He had been the borough engineer, who has been appointed the borough engineer of Bury, Lancs. Mr. W. A. Heywood presided, and Mr. W. Whatmough made the presentation.

LATEST PRICES.

IRON.

| | | | |
|--|---------|----|---------|
| Steel Joists, Belgian and German (per cwt., long, inclusive Per ton) | £5 12 6 | to | £5 17 6 |
| Steel Joists, English | 8 10 0 | to | 8 15 0 |
| Wrought-Iron Girder Plates | 7 0 0 | to | 7 5 0 |
| Steel Girder Plates | 8 2 6 | to | 8 7 6 |
| Bar Iron, good flats | 6 5 0 | to | 8 10 0 |
| Do, Lowmoor, Flat, Round, or | | | |
| Do, Welsh | 20 0 0 | to | 20 0 0 |
| Do, Welsh | 5 15 0 | to | 5 15 0 |
| Roller Plates, Iron— | | | |
| Best Sheet | 8 0 0 | to | 8 15 0 |
| Best Sheet | 8 0 0 | to | 8 10 0 |
| Angle 10s, Tees 20s, per ton extra. | | | |
| Builders' Hoop Iron, for bands, 4 to 6, 6 to 8, 8 to 10, 10 to 12, 12 to 14, 14 to 16, 16 to 18, 18 to 20, 20 to 22, 22 to 24, 24 to 26, 26 to 28, 28 to 30, 30 to 32, 32 to 34, 34 to 36, 36 to 38, 38 to 40, 40 to 42, 42 to 44, 44 to 46, 46 to 48, 48 to 50, 50 to 52, 52 to 54, 54 to 56, 56 to 58, 58 to 60, 60 to 62, 62 to 64, 64 to 66, 66 to 68, 68 to 70, 70 to 72, 72 to 74, 74 to 76, 76 to 78, 78 to 80, 80 to 82, 82 to 84, 84 to 86, 86 to 88, 88 to 90, 90 to 92, 92 to 94, 94 to 96, 96 to 98, 98 to 100, 100 to 102, 102 to 104, 104 to 106, 106 to 108, 108 to 110, 110 to 112, 112 to 114, 114 to 116, 116 to 118, 118 to 120, 120 to 122, 122 to 124, 124 to 126, 126 to 128, 128 to 130, 130 to 132, 132 to 134, 134 to 136, 136 to 138, 138 to 140, 140 to 142, 142 to 144, 144 to 146, 146 to 148, 148 to 150, 150 to 152, 152 to 154, 154 to 156, 156 to 158, 158 to 160, 160 to 162, 162 to 164, 164 to 166, 166 to 168, 168 to 170, 170 to 172, 172 to 174, 174 to 176, 176 to 178, 178 to 180, 180 to 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to 2012, 2012 to 2014, 2014 to 2016, 2016 to 2018, 2018 to 2020, 2020 to 2022, 2022 to 2024, 2024 to 2026, 2026 to 2028, 2028 to 2030, 2030 to 2032, 2032 to 2034, 2034 to 2036, 2036 to 2038, 2038 to 2040, 2040 to 2042, 2042 to 2044, 2044 to 2046, 2046 to 2048, 2048 to 2050, 2050 to 2052, 2052 to 2054, 2054 to 2056, 2056 to 2058, 2058 to 2060, 2060 to 2062, 2062 to 2064, 2064 to 2066, 2066 to 2068, 2068 to 2070, 2070 to 2072, 2072 to 2074, 2074 to 2076, 2076 to 2078, 2078 to 2080, 2080 to 2082, 2082 to 2084, 2084 to 2086, 2086 to 2088, 2088 to 2090, 2090 to 2092, 2092 to 2094, 2094 to 2096, 2096 to 2098, 2098 to 2100, 2100 to 2102, 2102 to 2104, 2104 to 2106, 2106 to 2108, 2108 to 2110, 2110 to 2112, 2112 to 2114, 2114 to 2116, 2116 to 2118, 2118 to 2120, 2120 to 2122, 2122 to 2124, 2124 to | | | |

VARNISHES, &c.

Per gallon.

| | | | |
|---|----|----|---|
| Fine Pale Oak Varnish..... | 40 | 8 | 0 |
| Pale Copal Oak..... | 40 | 8 | 0 |
| Superfine Pale Elastic Oak..... | 12 | 6 | 0 |
| Super Extra Hard China Oil..... | 10 | 10 | 0 |
| Superfine Hard-drying Oil, for seats of churches..... | 14 | 0 | 0 |
| Fine Elastic Carriage..... | 12 | 6 | 0 |
| Superfine Pale Elastic Carriage..... | 10 | 10 | 0 |
| Fine Pale Maple..... | 10 | 10 | 0 |
| Finest Pale Durable Copal..... | 18 | 0 | 0 |
| Extra Pale French Oil..... | 1 | 1 | 0 |
| Eggshell Flaking Varnish..... | 18 | 6 | 0 |
| White Copal Enamel..... | 1 | 4 | 8 |
| Extra Pale Paper..... | 10 | 10 | 0 |
| Best Japan Gold Size..... | 10 | 10 | 0 |
| Best Black Japan..... | 10 | 10 | 0 |
| Black and Mahogany Stain..... | 10 | 10 | 0 |
| Brunswick Black..... | 8 | 0 | 0 |
| Berlin Black..... | 10 | 10 | 0 |
| Knottling..... | 10 | 10 | 0 |
| French and Brush Polish..... | 10 | 10 | 0 |

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents. It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, &c., should be addressed to the EDITOR of THE BUILDING NEWS, Edinborough House, 1, Abchurch-lane, Strand, W.C., and not to members of the staff by name. Details are not infrequently otherwise caused. All drawings and other communications are sent at contributors' risk, and the Editor will not undertake to pay for, or be liable for, unsolicited contributions.

* Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects are small churches, chapels, houses, &c., but these are usually more sent and we undertake to pay for, or be liable for, unsolicited contributions.

Cheques and Post-office Orders to be made payable to THE STEAMSHIP COMPANY, LIMITED, and crossed London City and Westminster Bank.

RECEIVED.—W. R. L., J. B., Ltd.—A. D. and Son, J. V. W., W. C. C., G. C. J., H. and Co., A. L., W. H. S. and Son, P. O. Q., F. D. and Co., A. Ltd., R. F. W. and Son, T. M. G. and Co., Ltd., W. E. W. R. M. C. W. C. Ltd., A. O. and Co., W. R. C. C. and Co., G. S. and Co., Ltd., J. M. B. M. and Co., Ltd., G. J. and Son.

SAY.—

A. K. S.—Very likely.

ESQUERES.—We know nothing of it.

R. M. G.—Britten's book, published by Batsford, is by far the best of its kind. 2. We cannot say.

H. H. WAINWORTH.—We should get to Hayward Bros. and Eckstein, Ltd., Union House, Borough, S.E.

S. DORRIS MENDONS.—The illustration of the Wood Green Public Baths appeared in our issue of Jan. 10, 1910.

N. G.—If you will send it along we will see; but we are very full up always with small houses, churches, and the like.

J. BISHOP & CO., LTD.—The British Cable Co., Ltd., Broomfield, S.E., Graham Street, E.C., or the Roberts Co., Ltd., 5, Waterloo House, Knightrider Street, E.C., supply what you want. They would probably advise you best in the printing.

J. H. BULL.—There are no publications similar to our own there, and we do not think there is much more scope for architects' assistants there than here. More chance probably in Sydney and Harbours. Indian colonies are probably the best media for reaching Australian architects.

FIELDING.—If you mention you are a reader of the BUILDING NEWS, Enlargement Portland Cement Manufacturers, Ltd., of Portland House, Lloyd's Avenue, E.C., will send you a free copy of their hand-book "Everyday Use of Portland Cement." It is published at 2s. 6d.

PRACTICAL.—Read the notes on "Estimating for Reinforced Concrete Work," now appearing, especially the second instalment, which appeared in our issue of Feb. 2. We cannot again cover the ground, or go exhaustively into a big subject like concrete proportions in "Intercommunication."

DORTMUND.—The Zeigler Palace at Dresden, Ferguson gives a view from one of Fren's drawings in his second volume of his "History of Modern Architecture."

"BUILDING NEWS" DESIGNING CLUB.

LIST OF SUBJECTS.

F.—A Stone Bridge and a Tollhouse, forming approach to a Stileton on the northern precincts of a big country town. The site is flat, and the canal stream to be spanned by the bridge is 30ft. wide from bank to bank, each bank occupying a further 10ft. on either side of the watercourse, the normal level of which is 1ft. below the normal level of the roadway. The approach road up to the bridge will be reckoned to rise 1ft. higher, and the roadway to the bridge will be 1ft. higher towards the centre of its length, so as to insure head room over the water-line below. The bridge will thus be 50ft. long, and to have three arches, the middle one to be 20ft. wide in its span, and tall enough to allow small river barges without sails and rowing boats to pass. The width of the bridge to be 16ft. in the clear between the 10ft. stone flanking or parapet walls, which may take with the rise of the bridge to an easy gradient. The tollhouse to be on the low approach side of the bridge. The stream runs east to west. The house may be attached to the bridge on the east side or right hand; but as an alternative the lodge may take the form of an archway, with parts projecting east and west of the end of the bridge. The opening of the archway to be 12ft. in the clear, and with gates of strong iron plate pattern, capable of resisting a crowd on occasion. There must be three wickets in this gate—the central wicket for season-ticket holders, the right-hand wicket for families, and adjacent to a ticket-office, the left-hand wicket for public sale. All three to be independent of each other and to form part of the big gateway, which are to open for occasional cart traffic to and from the stadium, or for clearing the stadium of the refuse of the most-honourable society, to provide living-room, small kitchen and scullery combined, and offices. Three bedrooms for keeper up to the stadium, and a bathroom, and a kitchen, and a second floor. Provide a small ticket office as part of this lodge. The style of architecture to be Early Tudor, as in the Tudor style, and the middle stone-arched road. The parapet walls of bridge to be 4ft. above the roadway, which will be 20 ft. side path-way. A clock may be introduced as a feature in the style of the bridge, generally placed on the left, to the inch, but the larger scale must be used for the house and roadway plans. Two elevations and one section. The views to be taken looking towards the bridge from the town. The stadium need not be shown. Drawings to reach the BUILDING NEWS Office not later than Saturday, March 30, and each sheet to have coupon pasted on back.

Lieutenant-Colonel H. W. G. Cole, deputy commissioner, Eastern Bengal and Assam, is appointed director of temporary works, Delhi.

Alderman E. E. Cooper has commissioned Sir George Frampton, R.A., to execute a bust in marble of King, which it is his purpose to present to the Guildhall Art Gallery.

A public meeting in support of the movement for securing and preserving as an open space twenty acres of land adjoining the Patriotic Asylum on Wandsworth Common will be held at the Church of St. Wandsworth, Lambeth, on March 30. The sum asked for the land is £11,000.

The preliminary arrangements in connection with the formation of a bacon-curing establishment at Hitchin have been completed, and the plans and specifications for the new undertaking, which have been prepared by Mr. Leonard M. Chubb, F.R.I.C., Wandsworth, Lambeth, E.C., Edinburgh, who is technical adviser to the Society, are now ready and will be issued forthwith to the various contractors who are desirous of tendering for the work of construction.

In the test case brought by Mr. Alfred Davis, mechanical engineer, Derby, Mr. G. G. Cooper, the question whether the Sheffield Corporation is entitled to enter into competition with private firms for the supply of electric fittings, a decision against the corporation was given in the Chamber of Appeal on Friday by Mr. Justice Collins, but the matter is to be carried to the House of Lords unless a Bill before Parliament legalising the action complained of makes an appeal unnecessary.

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TENDERS.

* Correspondents will find in all cases obliged by giving the addresses of the parties tendering—at the same time, if the accepted tender, it adds to the value of the information.

BANGOR.—For the erection of a new workhouse infirmary containing 135 beds, for the Bangor and Beaumaris Marine Board.
Lamb, Benjamin, Toldenham £15,500 0 0
(Accepted.)
[Lowest of 11 tenders received; highest £21,735.]

BREAM.—For additional classrooms at Bream Council School, for the Gloucestershire Education Committee.
Mr. B. S. Phillips, Sure Hall, Gloucester, architect.
Nelmes, W. G., Coleford £3,117 2 7
Cooke, A. S., Stroud 1,477 0 0
Walters, E., Son, Bristol 1,487 0 0
Cousins, P. C., Gloucester 1,435 19 0
Collins & Godfrey, Tewkesbury 1,419 0 0
Lear, G. G., Bristol 1,388 0 0
Fellows, E. J., Lydbrook 1,370 0 0
Orchard & Peer, Stroud (accepted) 1,350 0 0

Bristol.—For the supply of electric cables, switch-board, and lighting appliances, at the shed and vices wall of the Royal Albert Dock, Arsonmouth, for the city council.
Taylor, G. E., and Co., London (accepted).

DERBY.—For offices and laboratory fittings at the new county council offices, Derby. Mr. G. G. Cooper, Licentiate R.I.B.A., Surveyor to the Standing Joint Committee, County Offices, St. Mary's (late, Derby, architect).
Jones, J., and Sons, Derby £1,225 13 6
Kyre and Sons, Ltd., Chesterfield (accepted) 1,152 14 0

Office Furniture—
Twigg, W., Derby 581 13 4
Kyre and Sons, Ltd., Chesterfield 531 2 4
Jones, J., and Sons, Derby (accepted) 613 1 1

DONCASTER.—For the erection of congregational hall, and school, and school, for the Hall-Gate Free Christian Church Committee—
Sprates and Son, Doncaster £1,981 0 0
(Accepted.)

ENGLAND.—For the alteration of the parapets of the Dean Bridge, for the town council—
Mason work £260 0 0
Macandrew, G. (accepted) 250 0 0

Robson, T. 295 0 0

GREAT YARMOUTH.—For paving 6,100 sq. yds. of the West Quay and Upper Brush Quay, for the Yarmouth Port and Harbour Commissioners.
Malcolm, McLeod and Westminster (accepted) £2,050 0 0
[Lowest of 18 tenders received.]

(Continued on page XVI.)

LIST OF COMPETITIONS OPEN.

| | | | |
|--|---------------------|---|---------|
| Clockwork—Water Supply Scheme for Village at Court | £5 and 25 per cent. | W. H. Spiller, Clerk, Clockwork | Mar. 1 |
| Widener—Iron Omnibus Footbridge over Colne-water at Thames | | | |
| St. Helena—Conservatory at Victoria Park | | E. A. Stickland, Boro' Surveyor, Alma-road, Windsor | 5 |
| Greenwich—Railway and Harbour, Junction Bishops Cleeve | | A. W. Bradley, M.I.C.E., Boro' Eng., Town Hall, St. Helena | 18 |
| Freeston, North Wales—Laying-out Estate (Judge, H. V. Lancaster, F.R.I.B.A.) | £50, £30, £20 | The Chief Engineer, Christiania-Drammen Railway, Christiania | 18 |
| Hampden—Hill—Enlargement of the Hill (Hampden, Essex) | 300, 200, 150 | Lord Abercromby and Trustees, 33, Henrietta-st., Strand, W.C. | 18 |
| Winnipeg, Man.—New Parliament Buildings | £50, £30, £20 | J. P. Bennett, Engineer, Harrow | 18 |
| Winnipeg—Union Station Office | £50, £30, £20 | The High Comm. for Canada, 17, Victoria-st., Westminster, S.W. | 18 |
| Wombwell—Public Swimming Baths, Houghall Lane, Wombwell | £50, £30, £20 | Clerk, Council Offices, New-road, Wombwell | April 4 |
| Havana—Equestrian Statue of Cuban General Amador (Piano and Model) | | W. Quist, Surveyor, Town Hall, Wombwell | May 1 |
| Carmanthen—Laying-out Garden City (About Five Acres) | | The Com. Intel. Branch, Road of Trade, 73, Basin-hill-st., E.C. July 27 | |
| Fadlam—Laying out Site of Old Gateworks | £40, £20 | W. Price Williams, Solicitor, Carmanthen | Notate |
| | | John Gregson, Surveyor, Council Offices, Mill-street, St. Albans | do. |

THE BUILDING NEWS
AND ENGINEERING JOURNAL.

Effingham House.

CONTENTS.

Strand, W.C.

[illegible]WAGE TABLES IN MEDIEVAL
BUILDERS' LEDGERS

The Table of Wages and the amounts paid out to the various artificers and others employed by Medieval builders form a prominent feature in their ledgers. The usual plan adopted by the builder was to set down the particular art or craft of each class of men as a heading, beneath which was placed the wage per day agreed on. Then followed the names of the men and the amounts due for the time worked each week in days or half-days, hours not being counted in Medieval times. In some builders' accounts we find this system improved on and a method adopted which shows at a glance those days upon which any man had worked, Monday, Tuesday, or any other, and also the days on which no work had been put in. This little system we may now proceed to explain.

We will take three of the many Medieval builders' ledgers now in the Public Record Office, two of which are of the time of Henry VIII. In all three the more elaborate system has been adopted, and we shall see to what extent they place the week's work of each craftsman and labourer before us.

Let us begin with the ledger labelled Exch. Acc. 474-7, dating 1515. Here we see the usual heading indicating the craft to which the men belonged, their names immediately following, with the amount of money agreed on to be paid to each man for each day. The amount due to each man is placed at the end of the line, the intervening space between the name and the amount due being filled by a series of small circles. These circles, very similar to capital O's, never exceed six in number, and they stand respectively for the six days of the week, the first for Monday and so on. At the end of the first week, another series of six O's may be seen standing for six days of a second week—and a third or fourth may be set down should the size of the page permit it.

When a man worked for a day represented by the O, that O was allowed to stand. If, however, he had not worked on that day at all, the O was filled in with ink, making a big black dot, a little cross

being set above it thus \oplus . The meaning of the cross is not quite clear, and seems superfluous. If half a day only had been worked, a half circle is placed thus, C, instead of a whole one, O.

We give some examples of the system:—

John Dyconson—
 OO ++++ OOOOOO liis. viiid.
 William Bray—
 OC ++++ ++++++ vid.

Carpenters, per diem viid.
Reginald Cooke— + + + + +
OOO O O ● ● ● ● ● ins. viidob.

Per diem vid.

Thomas Elyett + + + + +
OOO O C ●●●●●

Richard Bukham—
OOO O C ● ● ● ● ● ● ● ● 13- iiiid.

Sawyers, per diem vid
John Aundreson—
++++ ++++++

Richard Smyth

Breckleyers, per diem viiij
Thomas Breckley

000000 **10010** HRS.

days and half-days each man worked, and on what days he was absent.

On the Monday and Tuesday of the first week, but on the Wednesday, Thursday, Friday, and Saturday he was absent. The next week he put in the full time, William Bray worked on the Monday and for half Tuesday, but after that his powers apparently failed him altogether. And so we see with the other men, some days were put in and some were not; the table shows exactly to what extent each man worked, and the days for which he was paid.

Now let us turn to MS. 459-22, dating 1539, where we see a very similar system adopted, but where more than two weeks appear on a page at a time, and where, in place of a circle being filled up and surmounted by a cross, we find a simple cross.

John Jacobson - 000+00 000000 ++ +000

Henry Newman - 1000+00 $\frac{000+00}{000}$ vis. inid.
William Wornington - $\frac{000000}{000000}$ xx^d.

William Kyngman / ———— / ———— : + + + 000

In MS. 504-3, the circles alone are set down, a circle for each day. The amount

agreed upon for each day's work is not given, but it is easily calculated from the table.

Sawyers.

Larry Conyngan..... 00000 | 000000 vs vid

| | | | |
|----------------------|--------|--------|----------|
| strycke Hoggvælde. | 00000 | 000000 | vs. vid. |
| ycbard Guylson | 000000 | ———— | vs. vid. |
| William Ale | 000000 | ———— | ids. |

In MS. 454-29, absence is indicated by dot. Sometimes a cross, thus x, is put

instead of a dot, though why, is not clear, or dot and crosses have here the same significance. See also

appears thus, $\overset{O}{x}$, but apparently the

injunction of the two have no other effect than the simple O. otherwise a day of full work.

WORKMEN'S RECEIPTS FOR WAGES.

We are not able to place before the reader a single Medieval workman's receipt for his wages, nor is it at all likely that such receipts were given unless perhaps in cases of "part payment" for piecework. In a bill of a somewhat later period than the Middle Ages, dating indeed 1546, we find certain marks evidently set down by workmen which appear to represent forms of receipt for their money. The interest naturally attaching to the subject will perhaps justify a brief consideration of these marginal marks. The account is a question of Receipt Office, Exche. Acc. MS. 514.

down of a roll of paper several feet in length, and consist of the particulars of the repair of a house called Hartwell Lodge, with some additional details of their building expenses. Opposite the various items of money expended in wages and carriage of materials, the workmen paid have set their marks in the margin of the account, each man's mark being placed opposite to the paragraph relating to him. The items and the marks appended to them are arranged in the following manner. First the particulars recording the work done and the cost incurred are written down in the margin on the right-hand side, when the payee has set his mark, the fact that it is his mark being stated immediately after. An example of a whole paragraph adopted:—

em, payde to Richarde Estre,
carpenter, and his man for
iii dayes worke the same
weke

Richard Estrig
marke.

It will be noticed that the spelling of the name in the body of the accounts and in the margin is not alike, and, indeed, the names rarely are in exactly the same spelling in the accounts and in the margins. While some of the marks are simple crosses, several others are in so strange a form that nothing but a woodcut photographic reproduction would reliably portray or describe them.

Sometimes no mark appears in the margin at all, sometimes the word "Deferred" is alone set down. In almost all cases the marks are placed before the name of the payee in the margin, as is seen in the example quoted. However frequently a particular man's mark makes its appearance, it is invariably in exactly the same form.

We may now attempt to describe a few of the very large number of marks set down, reproducing in the earlier instances the marks themselves and the few words attached to them.

labourer, by name Thomas Ocklee. His mark is a simple cross, the whole of the marginal addition reading:

+ Ocklees merke.

The next mark is that of a carter of the name of Leonorde Harrisonse. This mark differs little from a rather flat capital H.

H Harrisonse merke.

Robert Maynerde, a carpenter, has a Latin cross for his mark.

Maynerdes merke

Richard Travil, another carpenter, has what looks like a Greek delta for his mark.

Travilles merke.


Sauesbey, a carter, draws for his mark merely a straight line.

— Sauesbees merke.

Robarte Levisse, another carter, makes a mark like an arrow-head.

< Levisse.

Robert Conne, a mason, makes a mark which may be represented by an ornamental capital R lying on its face with a small c beneath.

A tilemaker has evidently chosen the representation of a tile for his mark. Another mark is that of an ornamental W placed sideways, thus . A plasterer draws the representation of a trowel, a sawyer draws a figure evidently intended to represent a double-handed saw. The mark of Thomas Church is exactly the outline of a balloon; another mark differs little from a Greek Omega.

INDENTURES AND COVENANTS.

The terms Indenture and Covenant are to be met with at times in Medieval records of building operations. The former term is by far the more common, and will be found applied to documents of several kinds—contracts for building—agreements for the execution of certain work—receipts for money, and probably several other instances of formal agreement.

Indenture as applied to a form of receipt is alluded to in an account of moneys paid out for building work.

"Th som of money as hathen been receyved by Indentures at divers tymes."—Record Office Exch. Acc. 508-263.

We give the following example of an Indenture, the original document being in the Public Record Office labelled Exch. Acc. 489-2:—

"This Indenture, made between William Edwardes, constabill of the castle of Chirke on the one parte, and John Woburne of the other parte, for the receite of such summes of money as the same John Woburne have receyved for the reparacions of the said castell as folowith

"In primis receyvid of the said William the XXIIIth daye of Julye anno XXI. herry VIII—VII. li. Vs. VIII. p^{ce} William Edwardes

"Item receyvid, and so on.

In MS. 490-13 two other very similar indentures may be seen. The form of indenture was less frequently in use by builders, the meaning of the word being, perhaps, restricted to little more than "agreement." A covenant, so far as the examination of a large number of Medieval building records enables us to judge, was, in fact, a contract between two parties, the one to pay so much money, and the other to execute certain work for the same.

We are not able to place an example of a written covenant before our readers; but we reproduce two references to covenants from the account-book of a Medieval builder. These references show very clearly the meaning of the term: both are from the same volume (MS., 488-22) one immediately following the other as printed here:—

To Thomas Brad, labourer, for hymself and his hors carrying the said Min^{er} vial, To the said Donaldy, sceler, for working and laving the said sceler, by covenant, for every mth li. viid."

ESTIMATING FOR REINFORCED CONCRETE.—V.

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PRIME COST OF MATERIALS.

The prime cost of the materials used for making concrete necessarily varies considerably, according to the locality, and the arrangements which may be made for delivering them on the site of the works. The following values are given as representative prices for labour and materials in London districts where suitable railway or river facilities are available.

Prime Cost of Cement.—Portland cement is usually sold by the manufacturers at per "cement ton" of 2,200lb., comprising eleven sacks of 200lb. each. The present average cost price of Portland cement (to comply with the Standard Specification of the British Engineering Standards Committee) when purchased in large quantities is about 20s. per cement ton, delivered free on rail or barge at works. The cost of delivery in barge-loads at London wharves (including wharf charges) amounts to about 2s. 6d. per ton. The average cost of railway carriage to London (in truck-loads) is 5s. 6d. per ton. Cement sacks are charged for at the rate of 9d. per sack, unless returned in good condition, and carriage paid. An allowance for use and waste of cement sacks, including cost of return cartage and railway return carriage and delivery of sacks to cement-works averages about 2s. per cement ton (i.e., for 11 sacks). Cartage of cement from wharf or goods station to site of works (average distance, 2½ miles) may be taken at 1s. per mile, or, say, 2s. 6d. per cement ton. The total average prime cost of cement delivered on site may therefore be taken at 27s. per cement ton where water carriage is available, or 30s. per cement ton if forwarded by rail. For estimating purposes an average prime cost price of 30s. per ton delivered on site has been adopted.

Prime Cost of Sand (or Fine Aggregate).—The average cost of river sand delivered at London wharf in barge-loads, and including cartage to site, may be taken at 6s. 6d. per yard cube. In country districts the cost of sand delivered on site is frequently considerably less than the price quoted. For sand obtained on or near the site, the cost of digging, removing, and stacking for use varies from 1s. 6d. to 2s. per yard cube.

In localities where sand is not obtainable, it may be cheaper and more convenient to use finely-crushed stone or granite, screened to pass 3-16in. mesh, and free from dust. Fine granite screenings can be obtained, delivered free on rail at quarry, at 3s. per ton (1 yard cube = 1.25 tons approximately), or, say, 6s. 6d. per yard cube, including cartage to site in the neighbourhood of granite quarry. In other districts crushed stone can be obtained at a similar or slightly less average price.

Prime Cost of Coarse Aggregate.—Thames ballast or gravel, screened to pass 1½in. but not 3-16in. mesh, delivered on site, costs on the average about 6s. per yard cube, or, say, 6s. 6d. per yard cube if screened to pass ¾in. mesh, but not 3-16in. mesh. The cost of gravel excavated on site, including double screening, wheeling, and stacking, may be taken at 2s. 6d. per yard cube. Broken bricks, burrs, and clean old bricks, suitable for brick aggregate, may be obtained at from 5s. to 6s. per yard cube delivered on site, or if machine broken and double screened to pass 1½in. and not 3-16in. mesh at an average prime cost of 7s. per yard cube. Brick aggregate, broken and double screened to pass ¾in. and not 3-16in. mesh, costs about 7s. 6d. per yard

cube. When old bricks are available on the site, the cost of cleaning, machine-breaking, double screening, wheeling to heaps, and stacking, is about 3s. per yard cube.

Coke Breeze.—The average cost of unscreened coke breeze is 7s. per ton at gasworks. Coke breeze, double screened to pass ¾in. and not 3-16in. mesh, costs about 4s. 6d. per ton at gasworks, and is sometimes known as screened "pea-breeze." Approximately, 1 cubic yard of screened pea-breeze = 1½cwts. The prime cost of coke breeze aggregate, double screened to pass ¾in. and not 3-16in. gauge, delivered on site, and including washing ready for use, is about 7s. per yard cube.

Stone aggregate, broken and screened to pass 1½in. and not 3-16in. gauge may be purchased free on rail at 4s. per ton (1 ton = 1 yard cube) or, say, 10s. per yard cube delivered on site in London. If broken and screened to pass ¾in. but not 3-16in. mesh, the average prime cost price may be taken at 10s. 6d. per yard cube, including carriage and delivery to site in London district. When stone splallings or old stone rubbish is available on or near the site, the cost of machine-breaking, double screening, and wheeling to heaps averages about 3s. 6d. per yard cube.

Slag broken to 1½in. gauge and free on rail at smelting works costs about 4s. per ton (1 ton = 1 yard cube approximately), or, say, 10s. per yard cube delivered on site in London. Slag broken and screened to pass ¾in. mesh, but not 3-16in. mesh, costs about 4s. 6d. per ton, or, say, 10s. 6d. per yard cube, including carriage and delivery on site in London district.

Broken Granite.—The average cost of Leicestershire granite aggregate free on rail at quarry in fairly large quantities, is about 6s. per ton broken to 1½in. gauge, and 5s. per ton for granite crushed and screened to pass ¾in. and not to pass 3-16in. inch mesh. Welsh granite, free on rail at quarry, can be obtained at 4s. per ton, broken to 1½in. gauge, and chippings at 3s. per ton, crushed and screened to pass ¾in. and not 3-16in. mesh. Guernsey granite aggregate, screened to ¾in. and 3-16in. meshes costs about 7s. 6d. per ton free on rail at South Coast ports. English or Guernsey granite, broken to 1½in. gauge costs about 13s. 6d. per ton delivered at London wharf or railway station. For chippings screened to pass ¾in. but not 3-16in. mesh, the average cost may be taken at 12s. 6d. per ton at London wharf or railway station, or, say, 15s. per ton delivered on site. As 1 yard cube of granite aggregate weighs 22cwts. approximately, the average cost of granite aggregate (¾in. to 3-16in.) delivered on site of works in London district is estimated at 16s. 6d. per yard cube. It will be observed that the cost of carriage bulks largely in determining the prime cost value of granite aggregate in the London district. When there are granite quarries near the site of the proposed works, the cost of broken granite may compare favourably with other descriptions of aggregate. In the case of quarry-broken granite we have the apparent anomaly that the cost of crushed granite for the larger sizes is greater than for chippings or small crushed granite. This is due to the fact that quarry owners and manufacturers of road macadam obtain large quantities of granite chippings, as a by-product when making granite macadam broken to 1½in., 2in., and 2½in. mesh, and from which all the small material is removed. The demand for the smaller material is not so great as for the larger sizes, and it is consequently sold at a lower price in order to avoid accumulations of surplus chippings and siftings.

ANALYSIS OF PRICES FOR CONCRETE.

The prices already quoted for concrete work are based on the following prime cost values for materials delivered on site in readily accessible parts of the London district, viz.:

| | | |
|---|---------------|------|
| Portland cement | Per ton | 30 0 |
| Sand | Per yard cube | 6 6 |
| Coarse aggregates | Per yd. cube | |
| Ballast or gravel screened to pass 1 1/2 in. mesh, but not to pass 3/4 in. mesh | s. d. | 6 0 |
| Broken brick ditto ditto | 7 0 | |
| Ditto stone ditto ditto | 10 0 | |
| Ditto granite ditto ditto | 17 0 | |
| Ballast or gravel screened to pass 1 in. mesh, but not to pass 3/4 in. mesh | 6 6 | |
| Broken brick ditto ditto | 7 6 | |
| Coke breeze ditto ditto | 7 0 | |
| Broken slag ditto ditto | 10 6 | |
| Ditto stone ditto ditto | 10 6 | |
| Ditto granite ditto ditto | 16 6 | |

A few typical analyses of cost of concrete work are now given for the purpose of illustrating the system adopted for determining the values of the various items and prices already given. By substituting the local rates of wages, materials, etc., in lieu of those indicated, the estimated cost of similar work in other localities may be readily ascertained.

Under ordinary conditions, it is found that a total quantity of 38 to 39 cubic feet of dry materials is required to produce 1 cubic yard of well-made and consolidated concrete. For general estimating purposes, an allowance of 1 4/9 cu. yds. (38 cu. ft.) of materials has therefore been provided for each cubic yard of finished concrete.

ORDINARY CEMENT CONCRETE IN FOUNDATIONS.

I.—Concrete 1 to 3 (1:3:6) with gravel aggregate screened to pass 1 1/2 in., but not 3/4 in. gauge.

| | | |
|--|-------|------|
| 5 1/2 cu. ft. cement at 30 lb. per foot cube | s. d. | 3 11 |
| = 33 lb. at 30s. per cement ton of 2,240 lb. | 9 9 | |
| 11 1/2 cu. ft. cube of sand at 6s. 6d. per yard cube | 2 9 | |
| 25 1/2 cu. ft. cube of ballast at 6s. 6d. per yard cube | 5 2 | |
| 39 cu. ft. cube of dry materials | cost | 12 9 |
| Four hours labourer at 7d., measuring, mixing, wheeling, lowering, not exceeding 20ft. and ramming in position | 3 4 | |
| Water, 30 gallons, say | 0 1 | |
| Add for establishment charges, use of plank, and profit, say 15 per cent. | 15 2 | |
| Per yard cube | 23 3 | |
| Per yard cube | 17 6 | |

CONCRETE FOR REINFORCED FOUNDATIONS.

II.—Concrete 1 to 6 (1:2:4) with gravel aggregate screened to pass 3/4 in., but not 1/4 in. gauge.

| | | |
|--|-------|-------|
| 5 1/2 cu. ft. cement = 30 lb. at 30s. per yd. cube | s. d. | 3 11 |
| = 33 lb. at 30s. per cement ton of 2,240 lb. | 9 9 | |
| 10 1/2 cu. ft. cube of sand at 6s. 6d. per yard cube | 2 8 | |
| 25 1/2 cu. ft. cube of ballast at 6s. 6d. per yard cube | 5 4 | |
| 39 cu. ft. cube of dry materials | cost | 14 10 |
| Four hours labourer at 7d. and one hour concreter at 9d., measuring, wheeling, lowering not exceeding 20ft., and well-watering and ramming concrete in position round reinforcement. | 3 1 | |
| Water | 0 1 | |
| Add 15 per cent. profit, etc. | 18 0 | |
| Per yard cube | 22 3 | |
| Per yard cube | 20 9 | |

CONCRETE FOR REINFORCED RETAINING WALLS ABOVE FOUNDATIONS, WALLS OVER 12 IN. THICK, ARCHES ABOVE 12 IN. THICK, ETC.

III.—Concrete 1 to 3 (1:2:4) with hard stone aggregate screened to pass 3/4 in., but not 1/4 in. gauge.

| | | |
|---|-------|------|
| 5 1/2 cu. ft. cement = 30 lb. at 30s. per cement ton | s. d. | 3 11 |
| = 33 lb. at 30s. per cement ton of 2,240 lb. | 9 9 | |
| 10 1/2 cu. ft. cube of sand at 6s. 6d. per yard cube | 2 7 | |
| 25 1/2 cu. ft. cube of broken stone at 10s. 6d. per yard cube | 5 5 | |
| 39 cu. ft. cube of dry materials | cost | 19 0 |
| 4 hours labourer at 7d., and 1 hour concreter at 9d., measuring, mixing, wheeling, raising or lowering not exceeding 20ft., including attendance on concreter with small quantities and well-watering and ramming concrete in position around reinforcement | 3 6 | |
| Water | 0 1 | |
| Add 15 per cent. profit, etc. | 22 7 | |
| Per yard cube | 33 4 | |
| Per yard cube | 26 0 | |

CONCRETE FOR REINFORCED PIERS, COLUMNS, CHIMNEYS, DECKS, ETC.

IV.—Concrete 1 to 4 (1:1:3) with hard stone aggregate screened to pass 3/4 in., but not 1/4 in. gauge.

| | | |
|---|-------|------|
| 7 1/2 cu. ft. cement = 30 lb. at 30s. per cement ton | s. d. | 8 8 |
| = 33 lb. at 30s. per cement ton of 2,240 lb. | 2 6 | |
| 10 1/2 cu. ft. cube of sand at 6s. 6d. per yard cube | 2 6 | |
| 25 1/2 cu. ft. cube of broken stone at 10s. 6d. per yard cube | 8 3 | |
| 39 cu. ft. cube of dry materials | cost | 19 6 |
| 5 1/2 hours labourer at 7d. and 1 1/2 hours concreter at 9d., measuring, mixing, wheeling, raising or lowering not exceeding 20ft., and well-watering and ramming concrete in position in small quantities around reinforcement | 4 0 | |
| Water | 0 1 | |
| Add 15 per cent. profit, etc. | 23 7 | |
| Per yard cube | 33 6 | |
| Per yard cube | 27 2 | |

SHEETING, CENTERING, ETC.

Fixing.—The shuttering, sheeting, and centering should be securely fixed with all necessary struts, bearers, etc., to properly support the work, so that the whole may remain perfectly rigid during the placing and punning of the concrete. Where practicable, the moulds, shuttering, etc., should be fixed in position with wedges and clamps. Moulds and forms for reinforced concrete beams and girders should be arranged with slight camber of about 1/200th of the span, on the under side.

Limewhiting to Centering, etc.—The surfaces of centering, casings, etc., to be limewhitened or payed over with a solution of soap where necessary, before depositing the concrete in position.

Striking and Removal.—All centering to be arranged so that it may be eased without disturbing the concrete. No casings, centering, etc., to be removed until the concrete has properly set, and, if practicable, should be allowed to remain in position for not less than fourteen days after the concrete has been deposited. For arches of large span, the centering should be permitted to remain for not less than twenty-eight days.

Thickness of Centering, etc.—The sheeting or centering for floor slabs, etc., should be not less than 1 1/2 in. thick, and supported on stout fir joists or bearers spaced about 2 ft. apart. For columns, beams, girders, etc., forms or moulds of 1 in. or 2 in. deal should be used.

CARPENTERS' WORK.

SHEETING, CENTERING, FORMS, MOULDS, ETC. USE AND WASTE.

Note.—The following prices are for use and waste of casing, centering, forms, moulds, etc., for reinforced concrete work, including all timber in strutting, etc., and fixing same, with use of any necessary bolts and nuts, all labour to plumbing of angles and surfaces, easing, striking, and removal complete.

When the same centering, casing, forms, etc., can be used several times in the same work, without much cutting or alteration, a price of half to one-third the cost of ordinary use and waste may be allowed for every subsequent use.

| | | |
|--|--------------|-----|
| Sheeting, centering, etc.— | Per yd. sup. | |
| Use of wrought sheeting for concrete floors, flat roofs, etc., including close flush joints. | s. d. | 2 0 |
| Ditto centering to vaults, roofs, arches, etc., of any curvature or span exceeding 6 ft. diameter, straight on plan | 2 9 | |
| Ditto ditto skewed or raking on plan | 3 0 | |
| Ditto ditto curved or circular on plan, as to domes, etc. | 3 3 | |
| Use of centering to sewers, conduits, etc., circular or oval shaped section, exceeding 3 ft. and not exceeding 6 ft. diam., straight on plan | 4 6 | |
| Ditto ditto curved on plan | 7 0 | |
| Shuttering, casing, etc.— | | |
| Use of wrought shuttering or casing for retaining walls, with vertical or battered face, all surfaces measured straight on plan | 1 10 | |
| Ditto ditto curved on plan | 2 9 | |
| Ditto ditto with curved and battered face, straight on plan | 2 9 | |
| Ditto ditto curved on plan | 4 6 | |

| | |
|---|-----|
| Use of wrought shuttering or casing for concrete walls of buildings, not exceeding 10 ft. thick, with vertical faces, and shuttering fixed on both sides (all surfaces measured) straight on plan | 1 8 |
| Ditto ditto ditto curved on plan | 2 6 |
| Ditto ditto ditto ditto 10 ft. thick, and ditto ditto straight on plan | 1 9 |
| Ditto ditto ditto curved on plan | 2 8 |
| Add to preceding items, if timber is cut or detached narrow widths, up to 30 in. wide | 1 6 |
| Deduct from preceding items if fixed with rough face and joints. For each rough face | 0 4 |

| | |
|---|-----|
| Forms to beams, girders, columns, etc.— | |
| Use of forms, casings, etc., for concrete beams, girders, etc., built in situ | 3 6 |
| Ditto ditto for columns, piers, etc. | 3 3 |
| Square centering, etc., for concrete beams, girders, etc., in position | 4 6 |
| Ditto ditto ditto circular in position | 4 6 |
| Add to preceding items if under 14 square inches in section | 1 0 |

| | |
|---|---------|
| Moulds, &c., for cast concrete work | Per ft. |
| Use of moulds, &c., for casting concrete of super. plain sections, as for lintels, door and window heads, &c., straight on plan | 0 4 |
| Ditto ditto circular on plan | 0 6 |
| Ditto ditto for ornamental, moulded sections as for cornices, &c., straight on plan | 0 8 |
| Ditto ditto circular on plan | 1 0 |
| Centering to door and window openings, &c.— | |
| Use of centering to curved door and window heads in openings to concrete walls | 0 9 |
| Ditto ditto to arches, etc., in openings | 0 9 |
| Ditto ditto for curved heads to ditto in ditto | 1 3 |

FILLIES, MOUNDINGS, ETC.

| | | |
|---|---------|-----|
| Use of moulds, casings, &c., for forming chamfers, rounded angles, rebates, &c., on concrete beams, columns, &c., not exceeding 3 in. girth, straight | s. d. | 0 1 |
| Ditto ditto circular on plan | 0 1 1/2 | |
| Ditto for bull-nosed angles, chamfers, spandrels, or reveals to door and window frames, &c., to concrete beams, columns, &c., exceeding 3 in. and not exceeding 9 in. girth, straight | 0 2 | |
| Ditto ditto curved on plan | 0 3 | |
| Ditto ditto exceeding 9 in. and not exceeding 15 in. girth, straight | 0 3 | |
| Ditto ditto curved on plan | 0 4 1/2 | |
| Extra to moulds, casings, &c., for forming ornamental mouldings, &c., to concrete beams, columns, &c., not exceeding 3 in. girth, straight | 0 3 | |
| Ditto ditto circular | 0 4 1/2 | |
| Ditto ditto exceeding 3 in. and not exceeding 9 in. girth, straight | 0 6 | |
| Ditto ditto circular | 0 9 | |
| Ditto ditto exceeding 9 in. and not exceeding 15 in. girth, straight | 0 8 | |
| Ditto ditto circular | 1 0 | |
| Extra for mitres &c. stops to concrete beams, columns, &c., not exceeding 3 in. girth, mouldings, &c., not exceeding 3 in. girth | 0 1 | |
| Ditto ditto exceeding 3 in. and not exceeding 9 in. girth | 0 2 | |
| Ditto ditto exceeding 9 in. and not exceeding 15 in. girth | 0 3 1/2 | |

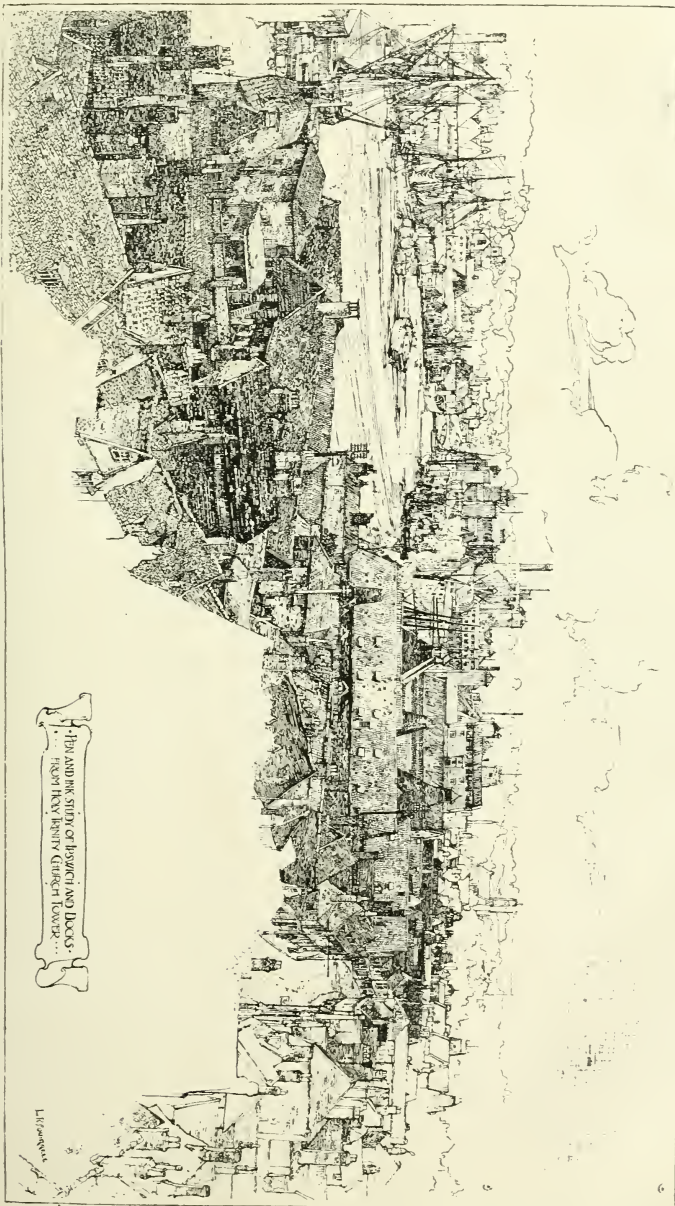
| | | |
|---|---------|-----|
| Extra for splay cutting and waste on centering, straight | run | 0 2 |
| Ditto ditto curved | 0 4 | |
| Extra to centering for intersection of girders, including waste | 0 4 | |
| Use and waste of timber in shoring, excavations, inclining, boxing, and cube moving | Per ft. | 1 0 |

ANALYSIS OF PRICES FOR SHEETING, CENTERING, ETC.

The average wholesale market price of timber suitable for rough and temporary purposes may be taken at about 43 3s. per load of 50 cu. ft. of balk timber, and £10 10s. per St. Petersburg Standard for deals, battens, etc. A St. Petersburg Standard = 120 deals, 12 ft. long, 1 1/2 in. = 165 ft. cube = 660 ft. super. of 3 in. deal = 1,584 ft. super. of 1 1/2 in. deal.

In many cases a contractor is able to avoid the purchase of any considerable quantity of material for temporary strutting and sheeting purposes, by using old timber or material which has been previously used for similar purposes, and also by utilising the rough pieces of timber which have been thrown out in the sorting and conversion of deals, balks, etc., for joiners' work. Foreign-prepared boards and scalings are also obtainable at reasonable prices, which may be carted direct to the site of the work, thus avoiding the trouble and expense of conversion, planing, etc., at the contractor's yard.

After allowing for conversion into scantlings, boardings, machine-planing, cartage, etc., the net cost price for sound timber suitable for false-work to concrete, such as strutting, sheeting, centering, etc., may be taken at 1s. 8d. per foot cube for



Pen and Ink Study of Liverpool and Docks.
... Heavy Heavy Church Tower...

NATIONAL SILVER MEDAL DRAWING: LIVERPOOL AND DOCKS. BY MR. LEONARD SQUIRE.

THE TENDENCY TOWARDS UNIFORMITY IN COMPENSATION FOR AGRICULTURAL IMPROVEMENTS.*

By LESLIE S. WOOD, F.S.I.

(Concluded from page 323.)

Now, having reviewed the true customs of the country, we can turn back again to the subject of the customary payments. These, as has already been mentioned, are of an arbitrary character, and are a comparatively modern creation. This is conclusively proved by the Report of the Select Committee of 1818, to which reference has already been made. This Report gives us a very good idea of the early history of compensation for manures and feedingsuffs, and they are supplemented in the Minutes of Evidence by the words of Mr. Hesselstine, who was then farming in Lincolnshire, and who considered that the custom became general in that county about 1826. Probably he set the date a little early, but the evidence of Kennedy and Grainger, writing in 1828 of the Lincolnshire custom, did not refer to this innovation. But the custom never became general; it extended to Glamorganshire, but made no further headway. At the same time it developed in another form in those counties where it was customary to pay for dung at a price per load, for it became customary for cake fed tenants to be valued at a higher price, according to its quality. In 1818 we see the Select Committee favoured compensation for unexhausted improvements, but they thought that any attempt to make its general introduction compulsory would be met by great practical difficulties, and they relied upon mutual arrangements between landlords and tenants for the general and successful adoption of the system. Although this ideal of mutual arrangements received no encouragement, the effect of the work of the Committee was not apparently lost, and the demand for compensation increased until in 1872, as a result of considerable agitation and the work of the Council of the Central and Associated Chambers of Agriculture, a Committee on Agricultural Customs was appointed, and they presented their final report in 1875. In that same year the first Agricultural Holdings Act, dealing with compensation for unexhausted improvements, was passed. There is no need to deal with this Act in detail, for as there was no provision in it against "contracting out," it had but little effect, other than to establish the principle. Consequently, in 1883, as a result of the recommendation of the Commissioners on the Royal Commission on Agricultural Depression, a further Act was passed, which confirmed the principle of compensation and made it compulsory. With the passing of this Act valuers' associations all through the country realised that in order to deal with the valuations likely to arise under it they must adopt a definite scale of compensation, and the Lincolnshire scale was adopted in nearly every case. Consequently the usual method of calculating the amount payable was to take the cost price and allow one-third of this for linseed, cotton and rape cake, and malt one-sixth and one-twelfth were allowed in the last year and year previous respectively. But between the passing of the two Acts of 1875 and 1883 the opinion that cost price was unsatisfactory had been gaining ground, for it is to be noted that whereas the Act of 1875 stipulated that the compensation should be a "proportion of the sum properly laid out by the tenant," this principle was abandoned in the Act of 1883. Two years later, in 1885, the principle of manorial values was inaugurated by the publication by Messrs. Lawes and Gilbert of their famous table, which were revised and brought up to date in 1897. At first, valuers' associations were shy in relinquishing their old method of a cost-price basis; but in 1903 six associations had adopted the new method, and by 1906 when the Central Chamber of Agriculture issued their second report, it was

shown that this number had been increased to thirteen, but there were still several associations satisfied with the old system. The Agricultural Holdings Act of 1900 had again called attention to the question of tenant-riht valuations and compensation, and a fresh impetus was given to the subject by the publication in 1902 of revised tables of manorial values, prepared by Messrs. Voelcker and Hall. When the Committee of the Central Chamber of Agriculture, appointed to draw up a scale of compensation, issued their report in 1903, it placed us in possession of all the latest facts and strongly emphasised the importance of adopting a scale based on manorial values.

Now, what has been the effect of all this rapid development, and what is the position to-day? The effect has been to produce four different bases of compensation, and the result is that valuers' associations all over the country are divided in opinion as to the best method of assessing the tenant's interest. These four methods are based on: (1) Cost price, (2) Lawes and Gilbert's tables of 1897, (3) Voelcker and Hall's tables of 1902, (4) the scale suggested by the Central Chamber of Agriculture in 1903.

Mention has already been made of the "cost price" basis, and it is necessary to explain quite briefly the principles involved in the tables of manorial values. There are three manorial constituents to be considered—nitrogen, phosphoric acid, and potash—and when Lawes and Gilbert prepared their tables they analysed the various manure crops to find the percentages of these three constituents per ton, and having by experiments discovered the amounts that went to make up increased weight in the beasts fed, assumed that the residues were returned to the farmer in dung, but were subject to loss by evaporation and drainage. These several residues were priced at their value as market commodities, and thus was defined the total or original manure value per ton of food consumed. In their tables of 1885 Lawes and Gilbert priced the ammonia at 6d. per lb., the phosphoric acid at 3d., and the potash at 2½d. In 1897 the ammonia was put at 4d., the phosphoric acid at 2d., and the potash at 1½d., giving a considerable difference in the manorial value. Having arrived at the original manorial value there were two important points to decide: First, the percentage of waste by evaporation and drainage; and, second, the proportion left from year to year by successive crops. As a result of their observation they assumed, with considerable accuracy apparently, that with cake, corn, and the usual artificial feeding stuffs, one-half of the original manorial value was thus lost, and with hay and straw two-thirds was lost. They also estimated that the manorial value was calculated as lasting for eight years—that with hay and straw one-fifth of the value should be deducted each year, and with cake and other feeding stuffs one-third should be taken off. When Voelcker and Hall prepared their tables in 1902 they based them on the work already begun by their predecessors, but they improved on it. For one thing, they defined much more accurately the loss of manorial value, and in order to simplify the tables they introduced the "per unit" standard, and altered the period of exhaustion from eight to four years, with a reduction of 50 per cent. each year. Moreover, in calculating their prices, they based them upon the prices of three constituents as charged to farmers in artificial manures. These they reckoned to be 5½d. per lb. for the ammonia, 2d. for phosphoric acid, and 3½d. for potash. A unit is 1 per cent. of a ton, or 22 ½ lb. So that the price per unit of ammonia would be about 22 ½ by 5½d. = 10s. 3d., which is equivalent to about 12s. per unit per ton for nitrogen, and in the same way phosphoric acid was calculated to be worth 3s., and potash 4s., per unit per ton. In assessing the method of fixing the manorial loss, Voelcker and Hall found from their tables that the loss of value of nitrogen and potash was in no way equal to the loss of ammonia. Consequently, instead of taking the loss as a whole at one-half, they divided the three constituents, reckoned the loss of nitrogen at one-half, of phosphoric acid at

one-fourth, but made no deduction in the case of potash. The fourth alternative scale is that of the Central Chamber of Agriculture, but it needs no comment. Its figures are substantially based on those of Voelcker and Hall, but the table of compensation is restricted to two years.

With the history and facts before us we can face the main questions. Is it advisable to have one uniform basis of compensation throughout the country. If so, which should be adopted, and should it be embodied in an Act of Parliament as the basis for compensation in all claims under the Agricultural Holdings Act? Would such a procedure work an injustice to existing tenants? To what extent is it possible to revise systematically such a scale, if permanently adopted? Should it also form the basis of any deduction for any produce sold off the holding? Does a manorial value mean simply a chemical value, or does it include a mechanical value in the case of straw? These are all questions that are having serious attention to-day, and need very serious consideration. If it be decided desirably to adopt a uniform scale it would be unnecessary to deal with several of the later questions just suggested; but I believe the majority of opinion would favour such a course. There are obstacles in the way of it—one quite realises that; there are the various scales now in existence which valuers do not care to alter; there are old prejudices against any change, there is a fear that such a change would work an injustice to sitting tenants, and in many districts, one is sorry to say, there are still in existence the old scales based on cost price, and they are so much more easily understood than tables founded on experimental work, and many men dearly love an old rule of thumb. On the other hand, all men realise that the old basis of cost price is out of date, and cannot be defended from an agricultural, much less from a scientific, point of view, and a uniform scale would bring all valuers' associations into line upon the most approved modern basis. The great advance that has been made upon the lines of manorial value during the past ten years shows that the time is ripe for the adoption of a modern scale, and it is probable that it has been adopted in many districts though that its technicality is no hindrance to its use; the standard of technical knowledge and the opportunities of studying the subject, so far as it needs study, are, of course, much greater to-day than they were even ten years ago. If we adopted such a scale we should concentrate our attention on it, it would be a scientific study, it would be worth improving, and, what is most important, it would be worth revising year by year, according to the value of the chief manorial constituents. At present, with four scales in use, there is no concentration, except to the extent that the cost price scale and the Lawes and Gilbert scale are in themselves dead to the scientific world, and such advance as is made is necessarily made along the lines of Voelcker and Hall's tables. For these reasons, if a uniform scale be adopted, there seems no question that it ought to be founded upon the Voelcker and Hall tables. If it go no further it would be better to adopt them as they stand, but if once we can agree that a uniform scale is desirable, it is possible to answer such questions as the application of a four-year table to a two-year basis, and the addition of a mechanical value to the manorial value of straw. If the co-operation of the learned compilers of the tables were possible a successful outcome to a representative conference would be assured. But there is a stronger reason still for the adoption of a scientific basis, and this is that if the scale is annually revised, it will enable us to deal much more authoritatively with the question of manures. At present it is the almost invariable rule to allow for artificial manures at their market price upon production of the bills, without inquiring into their chemical ingredients and manorial value. Such a custom must be altered to considerable advantage, and the income to an outgoing tenant buying in the cheapest and best market. The Fertilisers and Feeding Stuffs Act, combined with a modern scale of unit values annually revised, opens up possibilities of a far more equitable valuation!

of artificial manures has had hitherto existed between outgoing and incoming tenants. I have said that all men realise that the old basis of cost price is out of date; but, in spite of that, a few valuers' associations stick to it, and because they do not think it is just to an outgoing tenant that has should enter on one basis and go out on another. It does sound reasonable at first; but if there be an injustice, the majority of associations have hardened their consciences to perpetrate it; but beyond this we must look at the guiding principle of all farm valuations that has been advanced, and that is, to value an incoming tenant, and if injustice has been done in the past, the sooner remedied the better, for every year's postponement means another year's delay of that fuller justice that would come from valuations based, as far as we are able to do so, on the true manurial values. Besides, the argument that the scale cannot be changed is not logical, because under the scale itself the prices vary, and to carry the argument to its conclusion the outgoing should go out upon the same prices at which he entered. Otherwise he may have entered when linseed cake was £14 a ton, as quoted by Lawes and Gilbert, and be asked to accept compensation on the basis of £8 a ton on exit. The fact is, that with changing market and varying weather, farm valuations are full of inequalities, and a change of scale would be no greater hardship than a change of market price or of weather. If we adopt a uniform scale, should it be embodied in an Act of Parliament for valuations under the Agricultural Holdings Act? I think not. Freedom from an Act of Parliament gives greater elasticity, and gives a better opportunity of moving with the times. The possibility of uniformity has all arisen from the formation of the Central Association of Agricultural and Tenant-Right Valuers, and if all the valuers' associations in the country become affiliated to this and accept its ruling, there will be no need of legislation on the question of the interpretation of an agreed scale, and a uniform unit of price, and an Act of Parliament is better than no scale at all, so that the absence of co-operation between the various associations must always have a tendency towards further legislation. It would probably be urged that such a step would be unworkable, because it would legalise what some men consider to be an unjust basis, but the effect of such an Act would not be more unequal than the Act of 1883, which gave far greater advantages to those districts in which payment was only made for labour to dung than to those in which the dung itself formed a subject for compensation varying with its manurial constituents. If we adopt Voelcker and Hall's tables for manurial values for feeding-stuffs the question necessarily follows to what extent also we ought to adopt them in dealing with the feeding and consuming values of hay and straw, and with claims for hay and straw sold off. With hay there is practically no mechanical value, so if we adopt the theory already enunciated that there are but two values—namely, it is worth to feed and what it is worth as dung—the feeding rate may be obtained by deducting the manurial value from the market price, and the table will be adaptable for fixing the feeding price and for claims for hay sold off. If we admit, as I think we all do, that straw has a mechanical value, we must, in the same way, take the market value and deduct the chemical manurial value to arrive at the combined feeding and mechanical value. If we are buying at consuming price we must pay for the two combined, and if we are charging for straw sold off we must detach the mechanical value and add to it the chemical manurial value to arrive at our claim. It has been pointed out that the adoption of a uniform scale might well lead to a closer study of compensation for artificial manures, and the question is a difficult one, and dangerous in the hands of one who is not a scientist; but I am convinced that if it has been possible to produce a table dealing with the very complicated question of manurial values of feeding-stuffs, it would be a comparatively simple matter to put before valuers ruling for calculating the true values of artificial manures, provided that we are willing to

adopt Voelcker and Hall's method of calculation on the basis of unit values. There was an excellent article on this subject in the Journal of the Land Agents' Society of September, 1908, and in it the writer, Mr. S. H. H. H., says: "The difficulty in the adoption of unit values for soluble and insoluble phosphates, nitrogen and potash and lime, where employed as a body, and in such a way building up the value of artificial manures used, adding a sufficient sum for mixing and carriage. As he rightly points out, the price charged to a tenant farmer is often much higher than the actual value of the manure itself, the constituents; but the difference includes the rail carriage, the dealer's profit, and some allowance for the fact that the farmer buys the manure in the early part of the season, and does not want to pay for it till harvest. The carriage should, of course, be charged, but there is no reason why the business man or entry should pay for the overcharges against the business-like outgoer, who did not know how to buy and needed credit. Voelcker and Hall's tables of manurial values for feeding-stuffs are calculated on the price of the constituents, as shown by the price of standard manures, such as sulphate of ammonia, superphosphate of lime, and kainit, so that if their tables were adopted they would fit in with the current values attached to the constituents of artificial manures. If a table for calculating the value of manures were adopted, we should still be faced by the difficult problem of the number of years for which the several manures should be considered to last. But this is entirely a chemist's question. I think the scientist investigator should be told what manures or what constituents of the manures are lasting and what are not, and what difference there is in their lasting power when applied to various types of arable land and to pasture. There is no doubt that we need far more enlightenment on the subject; but as long as we purposely keep ourselves in a state of elementary knowledge we shall wonder that no one comes forward to give us what we are not in a fit state to receive.

This paper would not be complete, finally, without some reference to the difficult question of dilapidations both to land and buildings. Taking the country as a whole, the productivity of the land has been increased, and land farmed better now than at any time since the great depression, probably better than at any time hitherto. Combined with that we have tenants far more exacting; they want a higher standard of comfort, and the effect of urban by-laws applied to rural districts has been that landlords have continually had to put their hands in their pockets for improvements and alterations to sanitary arrangements, cow-houses, and other buildings, without receiving any additional rent by way of interest. As long as the effects of the depression were felt it was recognised that claims for dilapidations should not be pressed, and so add to the misfortunes of the outgoing tenant. But now, when tenants are keen to drive a business bargain on entry, it is but right that their successors, whether they be the new tenant or the landlord, should be compensated for the outgoer's neglect upon the same business lines. The Central Chamber of Agriculture, in their report in 1903, in dealing with dilapidations, said they did not enter into the question of non-repair or non-maintenance of fences, fences, ditches, drains, etc., as they considered that such should always be a matter of covenant; but they dealt more particularly with the question of foul land and the neglect to sow clover-seeds. The Central Association of Tenant-Right Valuers is, at the present time, considering the same subject. They are considering more particularly the question of dilapidations to land. They realise the difficulty of substantiating claims in rural districts, and they hope that it may be possible to arrive at some uniformity throughout the country by scheduling certain matters of dilapidation for which an outgoing tenant should be liable under normal circumstances. There is undoubtedly in some districts a sort of custom, as dangerous as it is indefensible, that, in the case of certain covenants to tenants should not be charged the full value

of their indebtedness for dilapidations to land and buildings. I feel convinced that the principle is bad for all parties concerned, and definite steps should be taken to deal with the subject, and emphasise the importance of dealing with both land and buildings. In the former case, if the method of dealing with dilapidations is weak, the outgoer finds little discouragement from leaving his farm foul, and the new tenant begins with a bad standard of cultivation and a sense of injustice. With buildings, if the tenant knows he will not be subject to a claim according to his liability, he neglects his part. Consequently, the landlord is unable, even if he would, to do his part, and small repairs lead to big repairs. Every land agent will tell the same tale, that the greatest encouragement that a landlord has to do repairs is to find his tenant ready to do his share, and the tenant who is neglected, and suffers accordingly, is the man who tries his best to avoid his liabilities. Any movement that encourages a higher sense of responsibility in both landlord and tenant is a step onward in agriculture, and should receive the hearty support of any who are able to help it forward. The importance of this subject was realised by the Committee who have recently issued their report upon the question of the breaking up of estates. Several witnesses, who were apparently dissatisfied with the present system of dealing with dilapidations, were of opinion that a record under the Agricultural Holdings Act should be compulsory. But the Committee show that a "record" is practically useless, and still that they "are convinced that every tenant on entry shall insist on compensation in respect of foul land, cross-crofting, hedges, ditches, and repairs, and if this were done no record would be required." The advice, no doubt, is good; but it is useless unless the interests of the newcomer can be safeguarded, and the landlord is assured that if he carry out his responsibilities the tenant will fulfil his part during the tenancy, or, if not, his liability will be properly assessed at the determination of his lease.

THE EXPRESSION OF LINE AND FORM IN ART.*

By LAURENCE PRESTON, A.R.C.A.

I intend to deal with four of the most important laws that govern the expression of all the arts.

When I speak of all the arts I include poetry and prose, music, architecture, painting, sculpture, and design, for these same laws shape and govern what is really within the mind in the making of all these. In music we have expressed many qualities. There is the joyous dance, the impressive funeral march, the elements, and all its many moods.

In architecture the stolidity of the Egyptian pyramids, which must be known to all of us. The dignity of Gothic cathedrals and their sculptured niches containing saintly effigies.

All these have developed on æsthetic lines by a study of these same laws. As an example, the rudely-constructed temples and buildings of early times were propped up by means of wooden piles which were made to taper towards the top, becoming wider at the top—no doubt with the idea of causing the rain-water to drip down vertically and thus prevent the rotting of the base.

But if we look at the trunk of a tree we do not find it thin at the roots and become wider at the branches, but just the reverse.

The reason I quote this is because a keen observation of nature is necessary to understand the principles underlying design of all kinds if we wish to give it any expression.

Therefore, following what was both structurally weak and æsthetically wrong, we got a more perfect type of the Egyptian, Greek, and Roman columns—a type of column that is still with us to-day, and which is only

* A Lecture before the Aberdeen Guild of Master Painters. The diagrams and sketches referred to will be found in the next number of the "Journal of Decorative Art," to which we are indebted for our report, but have not space for the diagrams, &c.

modified according to the proportion of the parts around it.

Now we will again go back to nature. We all know what it is to see the rugged grandeur of the Scottish mountains, and with what stolidity and dignity they seem set firm upon this earth. We have seen also the plateau below, with its feeling of quiet rest. We know the dignity of the tall, straight pines and firs that have their uppermost branches sometimes lost in the mountain mist.

We have stood also upon high ground and seen the undulating hills and vales stretching out far beyond, and suggesting a wonderful feeling of motion and poetic rhythm.

Finally, the terror of the storm, the crash of thunder, the flash of angry lightning, the fury of the winds, and the angry waves; the calm of a summer's evening.

We ourselves have all these qualities. At times we are stolid and dignified; sometimes joyous and full of music; at other times peaceful, and occasionally angry like the Furies of ancient mythology.

FOUR LAWS. I. THE STABLE.

I shall, therefore, commence my lecture with four laws. The first we will call static, suggesting an impression of stolidity, as the mountains and the Egyptian pyramids, the base of a column, the roots of a tree, the feet of man and woman, of animals and birds.

The exception is in the fish, which does not require such forms, but is designed purposely to propel itself through water.

Something like this principle from rest to port should follow the lines of such a creature, the torpedo and the submarine becoming more akin to such creatures than the ship.

Here I think I had better endeavour to illustrate a few examples upon the board, that you might more fully understand how the principle of stolid immobility is applied to the arts. [Casket, ornamental base, a chair, building, composition of a picture, and a piece of sculpture.]

II.—THE DYNAMIC.

Now let us take the opposite to this static form— π . We will call it dynamic, for the want of a better word, to express action—a lightness, growth, flight, etc.; something apart from the earth; something endeavouring to live its life in the clouds, as a bird; something designed for flight in the air, as a kite, balloon, or aeroplane—the latter being a close imitation of the bird, which depends upon its large planes supplied by a motive power from the body.

With this knowledge, should we, therefore, wish to express a lightness, an action that appears to be soaring into the air, something immortal or heroic, as the winged globe or lion of the Assyrians and Egyptians, or more recent still the winged cherubims and angels of the Byzantines, Romanesque, Gothic, and Renaissance periods, we must closely observe what has been done before us, and combine with it a keener appreciation of all things in nature that express π .

Then once you gain the knowledge of this principle, you will be able to convey a meaning to your decoration, whether it be for painting, sculpture, architecture, or design.

We will assume that we wish to represent a figure suggesting the Ascension of our Lord, Ambition, or Inspiration, the logical thing to express such would not be to use the static form suggesting stolidity, but the latter.

The crowning of a column in the capital, the section of a cornice to a room or building, are the logical result of such study and common sense, and to-day the same forms are used as elements in architecture; but more because it is a tradition than really reasoning why they ever should be placed in such position.

The folly of such an action is plainly evident, and the result must inevitably be that of failure.

As a painter and decorator has occasionally to decorate a large hall, a church, a reading-room, or a clubroom, he knows full well that what would suit one would not suit another. The church should be dignified and im-

pressive, as also the large hall. The reading-room must be unpretentious and quiet, and not detract one from reading by its shrieking wall-paper or loud colour, but be restful to the eyes when the reader has occasion to put down the book and reflect upon its contents. In the decorating of a theatre, the use of a light structural form would naturally tend to make the whole scheme light in feeling, while a full, rich treatment would give the opposite effect.

By my last statement I do not want you to necessarily understand it as a light-colour scheme or rich colour scheme, though such plays an important part in the success of a scheme, and requires a separate study to the expression of line and form.

At present I am more concerned with that of line and form. So far I have spoken of two forms, one expressing a stolidity, and the other mobility.

Now a combination of these two elements must naturally contradict each other, and the application of both equally will naturally result in a form that is neutral; that is, a form which has its parts equally governed by both laws. The predominance of the first law would make the form heavy, when the use of the latter more the former would naturally tend to give it more lightness.

III.—THE PERPENDICULAR.

Now we will go on to the next law. It is one that is more familiar to us, namely, that of an upright line or form giving stability, height, and dignity. Little need be said about the use of this in the arts.

We have seen its use in the long, upright decorative Pompeian panels which were painted upon the plaster in fresco. Again, in the use of stately, dignified columns of the Greek and Roman buildings, and in the predominance of vertical lines and forms in all the Gothic cathedrals in Europe, we can all see its use on the Mareschal College and the tower adjoining.

We occasionally see the use of striped wall-paper to give the same effect of height. Long, vertical panels applied to a low room give a feeling of height, should that be desired.

The alphabet in its vertical forms, being lengthened, would, no doubt, give us the same effect, but whether this is desirable is rather a moot point, unless it be when such is placed considerably high enough from the ground to counteract the effect of such lettering looking squat when seen from below.

The application of plant form, figures, and all ornament can be made to emphasise the feeling of stability and dignity by giving prominence to the vertical lines of such forms.

An instance of what I mean can be readily seen in the archaic figure decorations of the Byzantines, and which to-day are used extensively as models for adaptation to church decoration, whether it be for painting, mosaic, or stained glass.

Another instance can be seen in our own Art Gallery from casts of the Greek and Roman sculpture, which admirably show off to advantage how a dignity can be attained by the use of vertical lines and forms, both in the representation of the nude, and also in the draped figures—perhaps more especially in the latter.

One need not stop here, but further study the many objects and pictures to gain a more thorough study of the different laws on which I have spoken.

IV.—THE HORIZONTAL.

The last, though not the least, is the use of the horizontal line, the use of which expresses a steadiness to your ornament and decoration.

The frieze, cornice, dado, all express the above law, and give that feeling of continuity, binding the four sides of the room together in one harmonious scheme. One can imagine what a feeling of insecurity and unrest sculpture, which admirably shows off the courses of masonry laid other than horizontally.

Again, how annoying it is to read a sign that it is in anything but in a straight line. You all know the sort of thing I mean, though, fortunately, I have not seen so many in Aberdeen as in other cities.

In the cloisters of the old monasteries, the quadrangles of our many colleges, and occasionally in the old Elizabethan almshouses, the effect of rest was admirably expressed to suggest such. Here let us turn to nature.

We know the low, flat lying country of Holland, with its sleepy canals, and (speaking for myself) I have always looked upon the people of that country as exceedingly peaceable.

Now let us turn to other more mountainous parts, as South America, the Balkans, or nearer still, to our own Highlands, and to the north of Wales. Strange that the people of these parts are more or less warlike and given to uprising on the slightest provocation.

The one reason for such can only be explained in the wildness of their surroundings, and in the case of the Dutch by the placidity of their flat country.

To look again at nature in the long horizon of the sea, with its steady, horizontal line expressing the feeling of repose, what a contrast when the fury of the waves are dashing in a storm. Then this feeling of repose is turned to that of violence.

A violent against volume of water meeting each other with a terrific impact, and dashing with all their force against the stolid, horizontal breaker, give an instance of what an admirable contrast the use of the horizontal line can be against lines of forms which are more restless.

And so the same law of repose is applied to all the arts when we wish to express such. In music the repetition of the same note prolonged gives a feeling of rest, and contrasts with others that rush up and down the scale.

And so in decoration, whether it be a frieze, colour-band, or a stencilled dado, a picture, a piece of sculpture, or architecture, all these laws upon which I have spoken, and many minor ones, must be observed if we desire our art to express our story.

SMALL WATER SUPPLIES.*

In a country like this where, except in abnormal seasons, water is to be had by proper fetching almost everywhere, it is regrettable that small water supplies for the use of villages, farms, estates, and country mansions are not often undertaken. Perhaps one reason is that little or no information is at the service of local men whose engineering experience is limited, and who find little benefit from the many excellent textbooks dealing with the domestic supplies of large towns. To such Mr. Noel Taylor's book will be of considerable service. He does not overload his subject, but deals concisely and fully with the properties of water and the sources of supply, whilst the procedure for sampling and useful tests for the diagnosis of impurities are given. Various kinds of wells, methods of sinking, construction of shafts, and boring are fully described. The flow of water in channels and pipes, and the calculation of quantity and velocity are carefully discussed.

A chapter is specially devoted to the subject of pumping. Pumps of various types and by various manufacturers are detailed, with special reference to simplicity and economy in working, and practical advice is given for their preservation in working order. The construction of reservoirs, dams, tanks, etc., and the materials used are fully described, also methods for calculation of strength and weight. The various processes of filtration are given due prominence, with means of distribution, also the testing and laying of pipes. The subject of reinforced concrete is referred to, and examples of practical works in this connection are illustrated.

The Joint Army and Navy School of Aviation provided for in this year's Army Estimates, was held at the Royal Naval School, the Nelsonian Cavalry School, on Salisbury Plain. Plans have been prepared for the accommodation of 180 persons. The buildings it is estimated, will cost nearly £40,000.

Small Water Supplies. By F. NOEL TAYLOR. C.E. London: B. T. Batsford. 6s.

CURRENTE CALAMO.

We do not think, as things are, that many will regret that Mr. Horace T. Bonner's resolution was not carried at the meeting of the Institute on Monday evening. In any society in which there are two or more classes of members, to the highest of which any properly qualified member may—and speaking generally, should—advance himself, the management of the Society should, and usually will, mainly devolve on that class, simply because it will, or should, embody the ripe judgment of, and fuller acquaintance with, the concerns of the Society. Some representation on such a managing body is the right of the junior members, and we think the majority of the Associates are contented with the share that is theirs. Indeed, it seems to us that Mr. Bonner's motion was rather the embodiment of the discontent of the Associates who ought before this to have become Fellows. There are doubtless some of them who have personal reasons for remaining Associates, which it would be impertinence to criticise; the rest will pardon another reminder from us that it really is their duty to the Institute and to themselves to take the Fellowship and the fuller share of responsibility it entails.

Unless, of course, there is any reality behind the opinion which seems to prevail in some quarters, that recent events have favoured the idea previously mooted that it is time the Membership of the Institute, like that of the Society, was made of one class only—or rather two classes, Members and Students, and the subscription equalised. That is a proposition which needs very serious consideration. It is said by many with a considerable show of reason that there ought always to be a higher grade of Membership to which those only should be admitted who have in actual professional practice manifested their full qualifications for it. It is said by some that this is all very well in theory, but does not work in practice, the fact being that there are as able men, many able men, among the Associates than some among the Fellows, who see no inducement to proceed to the higher grade. If that became so largely, probably before very long the one-membership idea would prevail. At present we hardly think it does sufficiently to bring the matter within the range of practical politics.

Perhaps, as some say, it might facilitate the amalgamation of the Society. We hardly see why, ourselves. If the present scheme falls through, there are other and perhaps better ways of amalgamation, as we have before hinted; which, though not formulated, are being discussed. We think amalgamation will come, and that the feeling at the Institute in its favour is growing. The committee the Council has appointed are all good men whose diverse views are not likely to prejudice their straightforward action. Some of its members may, at present, be opposed to amalgamation, others are in favour thereof; but all, we are quite sure, have the only common object in view worth pursuing—the highest interests of Architecture and Architects, irrespective of all Societies or individuals, and it seems to us impossible that men of their stamp can work together without arriving at good results and diminishing prejudice.

We are glad that Mr. Sydney Perks's notion in favour of the publication of

speeches at business meetings was so far practically accepted that, subject to an amendment which was carried, it is to be done in future, subject only to the discretion of the chairman as to details. At the majority of business meetings the speeches ought to be reported. At some it would be inadvisable, and might be dangerous. There are times when members of any society do speak with greater, and to be desired, freedom when they know their words are not likely to be repeated elsewhere. There are other times when the possibility of publication, if now and then it induces shallow speakers to play to the gallery, does, and should, bring their responsibility more fully home to the greater number. The chairman is the proper person to decide as to publication, and discretion is wisely left in his hands.

When facilities for properly illustrating or reviewing competition designs are not afforded us we can only let them alone. We cannot say whether it is justified, but our contemporary, *The Hospital*, in its last issue somewhat severely criticises the award in the recent East Sussex Hospital, Hastings, competition. Certainly, if the special report made to our contemporary by a Fellow of the R.I.B.A. is correct, the award is difficult to understand. The writer says:

When we come to examine the plans we are at a complete loss to understand how any assessor with any knowledge of hospital-planning could have arrived at such a decision as has been given in this case. Of the three proposed plans, Nos. 1 and 2 ought not to have been placed in the first half-dozen, and No. 3 is superior to the other two in almost every point. The designs as a whole are, it must be confessed, disappointing; comparatively few of the competitors have made any attempt to construct their roads economically, and many have been led into multiplying entrances to get over the difficulties of gradients.

In the design placed first the road leading to the mortuary has a slope of 1 in 3, as calculated from the figured levels, although the elevation shows a nearly level approach. The road to the out-patient department has a slope of 1 in 47, and that to the main administration block a slope of 1 in 3. Needless to say that such gradients are wholly unsuitable for wheeled traffic and quite steep for foot traffic. These points alone ought to have disqualified the design.

Turning to the plans, we find the out-patient department and the dispensary placed at a level left, below the ward corridor, the only connection between the two being by two long flights of stairs under a covered way. All medicines, etc., therefore, served from the dispensary for the wards would have to be carried up these stairs, as there is no lift and no possibility of arranging one.

The ward pavilions are so planned that when the future extension is carried out the eye wards and the female wards must be destroyed. The eye wards, instead of being grouped together with a common operation-room, are placed one with the male, the other with the female wards, and two operation theatres are provided. On the ground floor no sanitary provision is made for the eye wards and the two small wards, the only offices being at the extremities of the large ward. The same remark applies to the first floor, where are wards for four and two patients, with no sanitary accommodation except that at the south end of the large ward. In fact, we must regard the whole as a very absurd answer to the question as to the position of nurses' wards, the author has arranged these offices in the most inappropriate and the most inappropriate position he could have chosen.

Another Fellow of the R.I.B.A., in a "spontaneous communication" to *The Hospital*, says:

The assessor's conditions show a lack of knowledge both of the site and the application of the conditions thereto, it being assumed that the site will level. From an examination of the selected design it is clear that the difficulties have been ignored, and the large ward has not been regarded as a unit. The cost was stipulated as being an essential in the selection, £35,000 being the sum that the committee would have available. The selected design is about £7,000 above the sum fixed as essential in the selection. I believe that with care a much lower figure might be reached.

The site, with its fall of over 50ft. from east to west, of course presented difficulties. Whether they were appreciated by the competitors or ignored by the assessor, such

illustrations as we have seen really do not enable us to say. It would have been more satisfactory had the writers added their names to their criticisms. The question as to cost was really left to the competitors' judgment, as the sum stipulated was manifestly insufficient.

The evident reply to up-to-date people who want to know, "Where to live?" is, "Jerusalem." A French syndicate has just secured the contract for a complete telephone service, an English firm has submitted tenders for lighting the city by electricity, a German combine is to improve the water supply from the valley of the brook Cherith—less easily exhausted, we trust, than when drought drove Elijah from its brink to Zarephath. The police are to be mounted on bicycles, and the roads are to be watered.

We see no mention of picture palaces; but they, doubtless, will soon follow. For more than a year the city has had a better telephone service than London—a better one than London had, we mean, of course—present comparisons would be odious. There are no garden cities yet in the suburbs, and people who love excitement will miss coal strikes, Suffragette window-smashers, and the evidently not distant general election. So we shan't all sing, "Jerusalem, my happy home" just yet, and the wise few who emigrate early may count their blessings there for awhile, anyhow.

Others besides ourselves have expressed doubts of the necessity of holding a Building Trades Exhibition as frequently as every two years even in London; but however that may be, we fancy the holding of two exhibitions at practically the same time in Manchester will convince most concerned that the money if spent in wider and less conflicting means of publicity would probably have secured a more profitable return. The seventh Manchester Building and Allied Trades Exhibition was opened at the City Hall, Deansgate, on Tuesday last by the Rt. Hon. S. W. Royle, J.P., Lord Mayor of Manchester, and will remain open until March 16. To-morrow sees the opening of Mr. H. G. Montgomery's Building Exhibition, which certainly promises to be of a more representative character, though Rusholme is some distance from the city. Those, however, who do visit it will find excellent exhibits of such well-known firms as Messrs. Thos. Parsons and Sons, Ltd., Ronuk, Ltd., G. M. Callender and Co., Ltd., C. H. Musselwhite and Son, C. A. Peters, Ltd., C. Jennings and Co., the Bispaham Hall Colliery Co., the Kleine Patent Fire-Resisting Flooring Syndicate, Ltd., Chubb and Sons' Lock and Safe Co., Ltd., G. Jackson and Sons, Ltd., Hayward Bros. and Ekstein, Ltd., J. and H. Patte-on, R. Waygood and Co., Ltd., D. Anderson and Son, Ltd., John P. White, Ltd., and others whose specialities are well known to readers of our columns, and to some of which we may have occasion to refer again next week.

One of our advertisers, we notice, offers his services this week as an architect's assistant "at a figure which Welsh miners reject as not a living wage." We are not sure that seven shillings a day is much of a temptation to employers, as things go, and we fear many assistants are ready to take less. Certainly some of our municipal bodies offer less for positions of real responsibility, not infrequently appending the stipulation that whole time must be given. That often reminds us of an advertisement of the Cape Govern-

ment for a new hangman, salary £150 a year. One condition in the advertisement was, "He will be expected to devote his whole time to his duties." We have sometimes wished "the duties" were included in those of sweated employees of such bodies here, and that their time might be fully occupied in disposing of their stingy taskmasters!

METAL LATH AND CEMENT PLASTER

Typical specifications for stucco on metal lath have been prepared by the Associated Metal Lath Manufacturers, Youngstown, Ohio. These specifications have been framed after investigations extending over a period of more than six months. From the copy furnished the *Contract Record* by Mr. H. B. McMaster, Publicity Commissioner for the above Association, we extract the following:

FRAMING AND GENERAL CONSTRUCTION.

Flimsy construction in framing is false economy. The best will prove cheapest. The studs, spaced at 12in. between centres wherever possible, should be run entirely from foundation to the rafters without any intervening horizontal grain in the wood. These studs shall be tied together just below the second story joists by a 6in. board, which shall be let into the joists on their inner side, so as to be flush, and securely nailed to them. This board will also act as a sill for the second story joists, which in addition will be

of the moulding to show when finished is not measured in as part of this thickness.

FURRING.

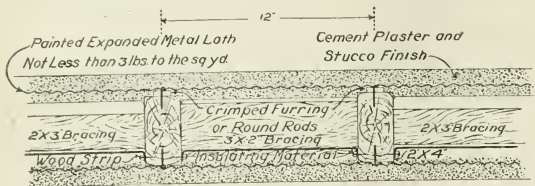
Use painted or galvanised steel rods or painted or galvanised crimped furring. One-quarter inch is best, and it should not be over 4in. at the most. This furring is to be applied along the face of the studding with galvanised staples.

INSULATIONS.

After the lath on the outside has been back-plastered, the air-space may be divided by applying heavy building paper, quilting, felt, or some suitable insulating material between the studs, fastening it by nailing wood strips over folded ends of the material. This insulation should be so fastened as to clear the 2in. bridging, leaving the preponderance of the air-space on the outside. Care must be taken to keep the insulating material clear of the outside plaster and to make tight joints against the wood framing at the top and bottom of the spaces, and against the bridging where the 3in. face intercepts.

CORNER BEAD.

If corner bead is not used, there should be 6in. strips of metal lath bent around the corners and stapled over the lathing, unless the sheets of metal lath as applied are folded around the corners. Even though corner bead is used, it is a good precaution to bind the corners in this way, and apply the corner bead over the strips of lath.



Detail Showing Section of Exterior Wall.

securely spiked to the sides of the studs. At two points between the foundation and the eaves brace between the studding with 2in. by 3in. bridging, placed horizontally, but with the faces of the bridging inclined in alternate directions in adjacent spaces.

All roof gutters should be fixed, and downspouts put up before the plastering is done; the downspouts should be temporarily placed about a foot from the wall so there will be no break in the plastering where they are to be finally fixed.

Wood copings or rails for tops of parapets, balustrades, etc., are not so good as cement, for they may curl up, warp, check, crack, and in various ways fail to do what they should—viz., keep water from getting behind the plaster. This also applies to brick chimneys when plastered, should have wide and tight caps of concrete or stone, to prevent water running behind the plaster.

If only wood sills are used, they should project well from the face of the plaster, and should have a good drip, either by being placed with a downward slant or by a groove rebated in the under side of the sill near enough to its edge that it will not be covered by plaster. The drip is an essential of good stucco construction that cannot be slighted. It must be used to prevent water getting behind the plaster. Lath and plaster should not be carried all the way down to the ground; this same restriction applies to brick or stone. Care should be taken that all trim be placed the proper distance from the studding or furring, to show its right position after the plaster is on. It is a common mistake to allow too little for the lath and plaster, with the result that mouldings which should project from the face of the wall are back from it or partly buried under the plaster, thus missing the effect desired. About 1 1/2 in. should be allowed for the lath and plaster, making sure that the projection

of cement. Mix fresh in small batches as used. The lime mortar and cement mortar should be mixed and tempered separately, measured carefully, equal parts of each, and mixed well together. In plastering over the face of the second story joists, as it is forced well through the lath, in order to fill entirely the space between the lath and the stud. The back-plastering should be a heavy coat, well trowelled, so that the lath is entirely enveloped. The finish coat may be done in a way to get any one of the many surfaces which give stucco its charm; this coat should contain no iron, as it makes the wall more porous, and if a lighter colour is wanted than can be gotten with ordinary cement, a white Portland cement should be used. The water-proofing acceptable to the architect should be mixed with the last coat of the exterior, according to directions given by the water-proofing manufacturer. The lathing and plastering on the inner side of the wall need not differ from ordinary practice. The exterior plaster must not be allowed to set rapidly; if necessary, hang a curtain in front of the wall or burlap or other material that can be kept moist for a couple of days. Stucco should never be applied when the temperature is below freezing.

STUCCO ON BRICK.

In applying stucco over brick chimneys a 3in. painted or galvanised steel furring-strip, not lighter than 22 gauge, should be fastened to the brick at 12in. centres with galvanised staples 2in. by No. 9 gauge driven into the mortar joints. The lath is fastened to the furring with No. 18 gauge galvanised wire, run through under the furring, and the same material used for lacing the ends of the sheets together between furring-strips. The same mixture for plaster is recommended for this work as on the metal lath on studding. Before plastering, the brick should be well wetted, to prevent its absorbing the moisture from the plaster, and the first coat should be forced through thoroughly so that the entire space back of the lath is filled with the Portland-cement plaster and the lath enveloped. —The *Contract Record*.

COLOUR-MUSIC.*

Professor Rimington's book will deeply interest all artists and musicians, and especially those who are convinced of the analogy of music to colour. The subject has occupied many minds in the past, and, of course, the exceedingly ingenious apparatus Professor Rimington has constructed and devised is not the first "colour-organ." Thirty-one years ago, according to a description in the *ENGLISH MECHANIC*, quoted from the *Scientific American*, of 174, April 22, 1881, a Mr. Bishop, of New York State, had built a colour-organ in which a series of coloured glasses, having shutters behind them, were connected with a keyboard in such a manner that when a given key was touched a shutter drops, and the light shines through the corresponding glass, and the ray is reflected on to a ground-glass plate facing the spectator. The play of colour thus produced corresponded with simultaneously played music gratifies the two senses at once, and the listener feels more than understands the harmony established between melody and colour.

Some years before that, according to a Mr. I. F. Ballard, whose letter appeared in the *ENGLISH MECHANIC* of July 20, 1877, a Mr. Leonidas Clint Miles, in a book of "Wax-Colour Painting," had proclaimed his theory that the order in which combinations of notes produce musical harmony produces with colours the harmony of colour. Mr. Leonidas Clint Miles, it was stated, was about to publish another work, in which he promised many striking instances of the union of principle and practice in the laws of art, union of principle and practice in the laws of art, and acoustics. Whether that work ever appeared we do not know, but Professor Rimington's is a worthy contribution to the elucidation of the subject and the evident outcome of long study and experiment.

Colour-Music: The Art of Mobile Colour. By WALLACE RIMINGTON, A.R.E., R.B.A., Professor of Hutehins, Queen's College, London. London: Hutchinson and Co., Paternoster Row, E.C. 4.

LATHING.

The lath shall be painted to protect it until it can be applied and covered with Portland-cement plaster. Care should be taken not to expose the lath to the weather while it is lying about the building. Use metal lath weighing not less than 3lb. per square yard spaced at 12in. centres, and fastened horizontally over the furring-strips with galvanised staples 1 1/2 by No. 14 gauge. The sheets between furring are to be tied with No. 18 gauge galvanised wire.

PLASTERING.

Portland cement will protect metal from corrosion absolutely by reason of its moisture-resisting qualities. Calcined gypsum should not be used in combination with Portland cement; the gypsum will destroy the protective quality in the cement, and neither should it be used as a substitute for Portland cement. A gypsum plaster may repel moisture for a time, but Portland cement actually thrives on it.

It is not theory only that Portland cement will preserve iron or steel indefinitely; it has been well demonstrated that Portland cement stucco will endure in any habitable climate. The first and second coats should be of good thickness, and the finishing coat should have with it a mixture of water-proofing. A total thickness of plaster of about 1 1/2 in. is good practice. It is aimed for the first and second coats to get a Portland cement mortar with as little lime in it as will make it work properly. Clean long winter-cattle hair should be used. For the first and second coats and back plastering, mix in the following proportions:

Line Mortar. Two barrels of hydrated lime, 1 yd. of clean sharp sand free from loam; four bushels cattle hair. Make up at least three days before using.

Cement Mortar. Two parts of clean sharp sand free from loam; one part Portland

Hitherto, he contends, there has been no pure colour art—that is to say, no art dealing solely with colour for its own sake, as music deals with sound. Colour has held a secondary position, and has always been more or less associated with form. Colour-music fills this gap. Colour-music will stimulate and develop the colour-sense, which is allowed to lie dormant in very large proportion of the human race. Emotional appeal, says Professor Rimmington, is the root of all art, and if the action which colour has on us is to a large extent an emotional one, so also is that of music. As all music is built upon the octave, so also is there a corresponding octave of colour, with its lowest and highest notes also separated by a proportionate increase of speed of vibrations, a fact which, it is contended, points to some common foundation or organic basis in nerve-structure or in mental constitution for receiving both colour and musical impressions. There are discords in colour as in music, each similarly produced by the simultaneous presentation of two notes or two colours pleasant in themselves.

Therefore Professor Rimmington has designed and constructed his colour-organ, of which full illustrations are given for experimental work. He divides the spectrum band similarly to the music keyboard, gives the colour-organ a keyboard similar to that of the organ or piano, arranges for the general control of the whole keyboard by stops, and provides higher and lower octaves in the colour-scale. Relatively paler and purer intensities, somewhat analogous, though not strictly corresponding, to the higher and lower octaves of the musical scale, though, of course, in the colour the wave-lengths remain the same. Whenever a note is depressed its corresponding colour appears on the screen, and if a chord is struck, combined colours make their appearance. The effect is thus described:

"Imagine a darkened concert-room. At one end there is a large screen of white material, surrounded with black and framed by two bands of pure white light. Upon this we suppose, as an example of a simple colour composition, that there appears the faintest possible flush of rose colour, which very gradually fades away while we are enjoying its purity and subtlety of tint, and we return to darkness. Then, with an interval, it is repeated in three successive phases, the last of which is stronger and more prolonged."

"While it is still lingering upon the screen a rapid series of touches of pale lavender notes and reds begin to flit across it, gradually strengthening into deep violet, then blue, then comes shot with amethyst, and afterwards haunting gradually into a broken tint of ruby, gives a return to the warmer tones of the opening passage."

A delicate primrose now appears, and through little runs and flushes of pulsation leads through several passages of indescribable cinnamon colour to deep topaz. Then suddenly intense green, then green and peacock-blue, with now and then a touch of pure white, seems to feel the tremulousness of the Mediterranean on a breezy day, and as the colour recedes there are harmonies of violet and blue, and the screen is rendered a little more tepid. More and more powerful they grow, and the eye revels in the depth and magnificence of the colour as the exultant strikes chord after chord, and the bass notes of the instrument.

"Then suddenly the screen is again dark, there is only a rhythmic and echoing beat of red and violet colour from time to time upon it. At last this disappears also, and there is another chord, more hesitating, tint of faded rose as at the opening of the composition."

"Upon this follows a stronger return of the colour, and as the screen once more begins to glow, a note after note of red and scarlet, and the rapid crescendo, which finally leads up to a series of staccato and forte notes of pure crimson which almost startle us by the force of their colour before they die away into blackness."

For suggested modifications, and some idea of the almost infinite resources of the instrument, the possibilities opened up by such a name, the reader must get the benefit of ourselves as he is that he is most materially helped to open the door to a new and healthful cultivation of a faculty which we venture to say is second to none as regards the increase of the real happiness and interest of life.

SOME MODERN PROBLEMS OF ILLUMINATION.*

By T. THORNE BAKER, F.C.S., F.R.P.S.

During the past two or three years quite a large amount of attention has been paid to the subject of illumination, from more or less new points of view which have been suggested by modern conditions of living and working. Formerly it mattered little whether a candle, an oil-lamp, or a Bray's gas-burner were responsible for the lighting of a room, provided only that the illumination were sufficient. Now we require an illumination which must possess the maximum economy, the maximum of diffusion and distribution, and which must be of a colour required by the dictates of hygiene. The means of testing an illuminant, and of modifying its light, so as to produce an illumination which is physically nearest to what is ideal from the point of view of hygiene, and so on, are few, and are appreciated by the few only who have made this subject a matter for personal attention. I propose to deal briefly to-night with simple ways and means of producing an illumination as nearly resembling daylight as possible, which can be adopted by illuminating engineers and others with a small amount of expense, and which will give results of sufficient accuracy to satisfy modern demands.

While so much attention is being paid to the subject of lighting, from hygienic and similar points of view, I think it seems fairly evident that its spectroscopic character should receive due consideration; but up to the present I do not think that the colour of light has been seriously dealt with by more than a few independent workers. We cannot, of course, compare the human body or the human eye with anything else; but it is interesting to note that the colour of light on living organisms and on vegetable life is in some cases extremely marked. I have a slide here showing how certain bacteria crowd together in specific regions of the spectrum, simply because these regions embrace the rays absorbed by the chlorophyll of the algal filaments present in the water, and, by the chemical change produced by this absorbed light-energy, obtain the maximum of assimilation. I also showed a few months ago, at the Royal Institution, some remarkable effects of coloured light on the growth of bacteria, and more especially on the formation of pigment by bacteria, and on that occasion I stated the inference that one was led to arrive at—viz., that, while the ultra-violet, violet, and orange rays produced marked effects on many families of bacteria, the green-yellow rays in the middle of the visible spectrum were usually without effect. I also showed, from tests made in the laboratory, how, by projecting certain specified red rays into an experimental "vat" in which sugar was being fermented by yeast, alcohol was produced with abnormal celerity. A diagram of the apparatus employed is shown on the screen. These facts tend to show that the artificial light employed for the habitation of human beings should be presumed to be that to which they are normally accustomed—viz., daylight—and that the investigations made with a view to determine the most suitable light for the eyes will lead to one result only—the demand for a light spectroscopically equivalent to normal daylight. Whether normal daylight is the best illuminant or not may, perhaps, be open to argument; but it can hardly be the case when we consider that man, through being accustomed to sunlight for so many thousands of years, must naturally have become physically adapted to it.

Except in isolated cases of specialisation, the illuminating engineer has not closely associated spectroscopic methods with the practical side of lighting and illuminant testing, though now much valuable work is being done by Dr. Ives and Mr. Luckiesh. I have come across many instances in this country where industrial work has been hampered through the use of artificial light—ideal,

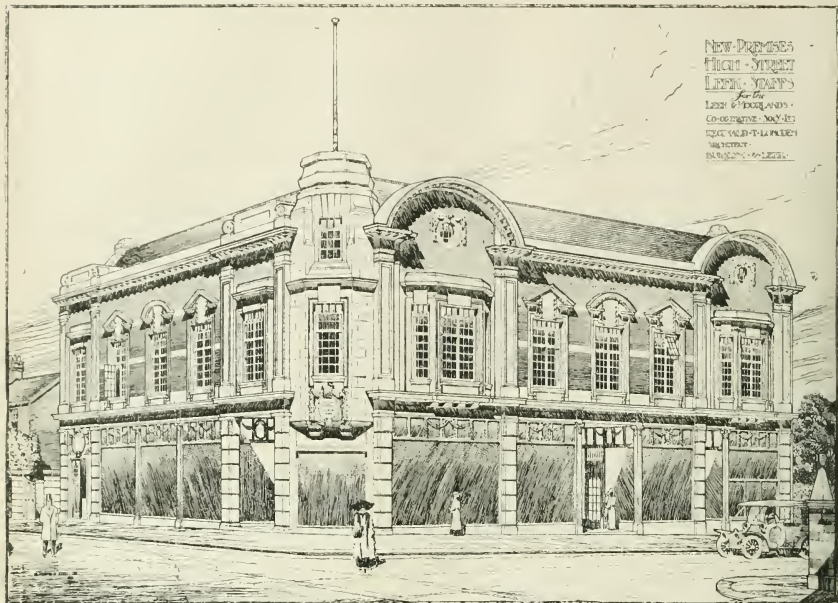
perhaps, from the engineer's point of view, but very deficient from the physicist's point of view. One example, of which there must be many hundreds of cases, was that of a factory where the printing of wallpapers was carried on. Considerable difficulty was always found, especially in winter-time, in the matching and choosing of colours, and it was found that, when the daylight was good enough, the colour-matching—of the dyes, etc.—was done by it, whereas in dull weather it was carried out by the light obtained from carbon-filament lamps. Considerable discrepancies naturally occurred from this practice, and a special lamp was made, in which I employed metal filament (tungsten) lamps and a suitable light filter, which gave filtered light spectroscopically equivalent to daylight, so that uniform colour-matching and the accurate selection of dyes and pigments was insured.

The spectrum of daylight itself varies within quite remarkable limits, as the slide now on the screen will show. You will see here the curves obtained by plotting against wave-lengths the densities obtained on a panchromatic plate on exposure in the spectrograph to sky-light at various times—dull evening summer sunlight, when by atmospheric refraction the light is very yellow, and sky-light with direct sunlight, and with the sun obscured by light and heavy clouds respectively. It was, the lecturer thought, well agreed that the best standard to adopt is white cloud-light, and he therefore directed the attempts under discussion to the screening of various forms of illuminants so that artificial illumination physically equivalent to daylight is obtained. A description in detail of these will be found in the May's issue of the *Journal of the Royal Society of Arts*.

INTERESTING DEMONSTRATION AT A BIRMINGHAM STUDIO.

An artificial illuminant equal to daylight has long been sought after; but until recently, says the *Birmingham Daily Post* of Wednesday last, the wit of man has failed to discover it. For the ordinary illumination of factories and workshops, mercury-vapour has held first place for the last ten years. In places where colours are of importance, however, it has been impossible to use mercury-vapour, owing to the fact that those shades in which red appeared could not be accurately distinguished. But now an invention of Dr. Peter Cooper-Hewitt has removed this difficulty. By means of a fluorescent reflector the red and orange rays missing from the light of the ordinary mercury-vapour lamp are supplied. The value of the invention, apparently, cannot be overestimated. It may be applied to artificial lights of all descriptions. Apart from the failure to distinguish certain colours, objection to the mercury-vapour light has been made on account of the ghastly appearance any person assumed on coming within its rays. That objection, however, is also removed, and the light of the reflector mercury vapour may now be applied to any purpose—workshop and factory lighting, stage lighting, and, of course, to studios where daylight, or something equivalent, is essential. So far only one installation has been provided in England—it is a German invention—and this has been fitted up at Mr. J. W. Beaufort's studio in Easy Row, Birmingham. To a representative of the *Daily Post*, on Tuesday last, Mr. Beaufort gave an interesting demonstration. Had it not been that the rain was pattering against the windows, it would have been difficult to realise that the light in which the room was bathed did not come from a sun in a clear blue sky. Yet when a lamp was dismantled of its reflector the change was remarkable: the light was still brilliant, but when certain colours were held up they could not possibly be accurately distinguished. Under the dismantled light one's personal appearance might have been compared to that of a corpse, but with the reflector in use, appearance was quite normal. For photographic purposes the invention is probably invaluable, and it is confidently asserted that the

* Paper read before the Royal Society of Arts on March 6, 1912.



was first employed. In other words, the rib vault was invented where timber was not to be used, or where the ultimate price and difficulty of getting it were practically prohibitive of its use. Back of all this lies the undoubted and already known fact that vaults can be constructed without solid timber centering by the use of the rib vault, that they actually were so constructed in the Gothic period, and that the typical Gothic cathedrals could never have been built if solid timber centering had been the necessary preliminary to their construction.

Mr. Porter begins by pointing out that when the rib vault originated in the Romanesque period, the builders who employed it did not know that it would be developed into Gothic. The Gothic was impossible without it, but the Romanesque builders did not know that there was going to be any Gothic. Why, then, did they employ the rib vault, and ultimately use it exclusively in the transitional churches which mark the first steps toward the Gothic? This question is complicated by the following facts: first, that the groin vault was often employed exclusively in very large and important Romanesque cathedrals—Speyer, for instance; second, that the groin vault was frequently employed in churches which also used the rib vault; and third, that the groin vault, and not the rib vault, was originally the only form of cross vault with which the Romanesque builders were acquainted, whether in Italy or in France. In order to answer this question, Mr. Porter gives first quotes and then disposes of the two principal explanations which have so far been universally accepted as accounting for the rib vault. It is generally said, for instance, that aesthetic considerations favoured it, and that it was used because it was more artistic in effect than a plain groin. But this, as Mr. Porter points out, is only true of the developed and perfected rib vault. The earliest rib vaults were heavy, clumsy, and ugly. (Many of these primitive vaults, it is remarked, have been personally found, described and published, for the first time, by our author.) It has therefore to be conceded that the contemporary groin vaults were more artistic in effect than the earliest rib vaults which displaced them. Another and a universally accepted explanation is that the ribs concentrated and took up the thrusts of the inter-arched vaulting, and were therefore devised as a means of concentrating thrusts. But here Mr. Porter shows that the Italian builders, who are supposed to have purposely concentrated these thrusts, took no pains to resist them after they were so concentrated. In fact, they were so indifferent to the problem of thrust that they almost wholly neglected it, to the very great detriment of the same buildings. Our author also shows that the joints of the groins served the same purpose as the ribs, as far as concentrating thrust is concerned, because the surfaces of the vaults were generally domed so as to bear on the groins. As to durability and strength, there is no great preference as between the two systems, although some advantages must certainly be conceded to the rib, aside from its importance as a centering. On the other hand, the comparison of both systems in numerous instances, where both kinds of vaults were built in the same church, shows that the groin has stood the test of time as well as the rib. The present accepted and universally taught explanations for the use of the early rib vaults are thus evidently untenable, when the subject is examined.

In contrast with these explanations, Mr. Porter has already been briefly mentioned, and his proofs have now to be rehearsed. They rest on the admitted fact, as developed by Viollet le Duc and Choisy, that solid timber centerings were not employed in the typical Gothic buildings. Timber centerings were confined to the ribs; from these ribs the vaults were constructed by doming (or arching upward) the centres between the ribs, which thus were self-supporting arches on their own account, as soon as a given course between two ribs was in position. A single movable and expandable piece of

centering was used in laying these successive courses, and even this was dispensed with up to a certain height of the ribs, as related to their intermediate and increasing width, which showed a change in the size of the masonry blocks at the joints where the centre began to be used. If the Gothic builders used the ribs as a means of vaulting the spaces between the ribs without timber centering, it seems a self-evident proposition (as soon as someone has suggested it) that the ribs were originally invented to serve this purpose. But it is exactly this self-evident proposition which has never been developed by the standard authorities. Mr. Porter is himself an involuntary witness on this subject, because he published in 1900 a history of the origin and development of Medieval architecture.* This work is a very complete summary, up to date, of the results of the standard authorities on the history of Medieval vaulting. The wholly original side of the book is its unparalleled series of bibliographies, including an enormous number of monographs on individual churches, and its combination of a voluminous list of authorities for the statements in text. We shall not find, however, that any of these authorities, or Mr. Porter himself, at that date, had offered the explanation of the rib vault which now appears so obviously to be the only true one; after the proof has been furnished—viz., that it was devised as a means to economy in timber. The materials for this proof have been gathered, since 1909, by a laborious study of largely hitherto unknown or neglected Lombard churches, many of which were sought for after the first clue had been found, and which supplemented the original suggestive idea in material points. Among these churches are those of Sanzauro Sesia and Lomello (c. 1025). These have already been published in independent monographs by Mr. Porter, in the Italian archaeological journal, *Arte e Storia*. The vaulted churches of Corneto Tarquinia have also, for the first time, been subjected to critical study and rescued from antiquarian neglect. Among the corroborative proofs of the general thesis, is an analysis of the early rib vaults of France, showing that their peculiarities, and their evolution in the direction of Gothic traits, are all to be explained by the simple principle of the effort to economise in timber centering. But the rib vault was employed in Lombardy about eighty years before it was borrowed by France. Italy had previously learned from Byzantine art the construction of groined cross vaults, with a skeleton timber centering which was confined to the diagonal groins and the four bounding arches, the intervening vault surfaces being arched upward (domed), and built with the use of the cerce. This system was available for aisles, but not for vaults, because the timber centering arches, under the groins, were too frail to support the weight of a nave vault pending its completion. The masonry rib, generally of brick in Italy, was therefore originally devised as a stronger and permanent centering. As soon as completed, it took the place of the timber skeleton centering, and fulfilled the same mission, with the necessary additional strength. A remarkable illustration of this phase of the given evolution is that the Lombard rib vaulted churches only use the rib in the nave, and that they continue the use of groin vaults in the aisles, in which the ribs are never found, evidently because they were not needed where the skeleton timber centering had the requisite strength. In France, on the other hand, where the system was borrowed, after the evolutionary stage

was passed, both the aisles and the nave are rib vaulted, wherever the rib was introduced into naves. Other interesting proofs for Italy are obtained by Mr. Porter from a study of the vogue of the masonry vault in a given locality as related to the scarcity of timber. In the territory of Corneto, for instance, where timber was abundant, there is not a single vaulted church of the Romanesque period. In the not far distant territory of Milan, where timber has always been scarce, and must have been especially so when roads were bad, and territorial feuds and wars were constant, brick vaulting was general, and here the evolution of the rib vault occurred. By similar reasons the remote and isolated development of vaulting at Corneto Tarquinia, south of the Mar emma, is again explained. According to Mr. Porter's conclusions in this direction, not only the use of the rib vault, but even the use of vaulting, as opposed to that of timber roofing, was mainly determined in Italy by considerations of economy in timber. Our author is careful to point out that solid timber centering was used, under certain conditions, for rib vaults, but cites that as the first introduction in France. He quotes later Gothic examples where solid centering was certainly used, and gives the reasons for these occasional and exceptional cases. As regards Italy, he also rehearses the history of the decline and ultimate relative disuse of Romanesque vaulting, and of the rib vault in Lombardy, and he shows that the higher development of the rib vault is only found in France during the fourteenth century, the Gothic. Whereas an almost total dearth of prohibitive scarcity of timber is proven to have been the rule in the Italian localities where the rib vault was first invented (so that the first invention was really a compulsory necessity when vaulted naves were in question), a broader view of the question is needed for France, and here the relative economy of timber used for the skeleton centering of masonry vaults, contrasted with solid timber centering for entire vaults, is held to be the initial and primary explanation.

The following points have to be especially considered here. The Byzantine system of building domed groin vaults over aisles, or in crypts, with a skeleton timber centering confined to the circumscissing arches and their diagonals, was not known in France until it was introduced from Italy at about the same time with the rib vault. Its use in France at this time, or later, was wholly exceptional. Thus the French had been using solid timber centering even for groined cross vaults before they borrowed the rib vault from Lombardy. As for other primitive vaulting systems in France—viz., those of the continuous barrel vault and of the transverse barrel vault, they could not have been erected without solid timber centering. Another consideration is still more cogent. The evolution of the Romanesque Medieval church was not an evolution in which improved methods of vaulting were applied to churches of the same size, or of the same simple plan, which are found in those of older date in which the improved methods were unknown. There was a constant growth in the average dimensions of the larger churches, and a constant growth in their complexity of plan, so that when a groined cross vault has to be built, it is, of course, uneconomical to use a solid centering, even for a small vault, and it is much more difficult and much more wasteful to use solid centering for a large one, but it is still physically possible to do it. But when the trapezoidal plans of the vaulted spaces in ambulatories and cloisters are in question, the construction of a solid centering is physically impossible, because the most expert geometers could not project in advance the varying curvatures, twisted surfaces, and spherical complications (increased by the doming) of the vaulting surfaces, so that they could be moulded into the surface of a solid timber centering, to say nothing of the prohibitive expense of such an effort. Thus the rib vault was not only an economy, it was also a necessity, in the evolution of the later plans of the French Romanesque

* Medieval Architecture: Its Origin and Development. Two vols. New York: The Baker-Taylor Co. 1909.

into the transitional plans of the French Gothic (originally there was no other Gothic).*

Building Intelligence.

CARDIFF.—The Exchange, of which the first section was built in 1883-14 from designs by Mr. Edwin Seward, F.R.I.B.A., of that city, has now been completed under the direction of the same architect. The Exchange comprises a central hall, 100 ft. long, 50 ft. wide, and 60 ft. in height. On the north side is an extension, adding greatly to the floor space, with, on the western side, reading, writing, and magazine-rooms, and cloakrooms. On the south side is the accommodation for the Cardiff Chamber of Commerce, consisting of a hall, 40 ft. by 30 ft., together with council chamber and secretary's office. The whole of the Exchange hall and rooms have been panelled in Austrian oak, and the floors laid with oak parquet. From the first to the second balconies is a colonnade of Corinthian columns, also in oak, the drums of the columns being decorated in alto-relievo, with designs representing "The Mining Industry" and "The Maritime Industry." The contractors were Messrs. H. Turner & Co. and Mr. F. Powell Noble has acted as clerk of the works.

DUNFERMLINE AND ROSYTH.—A further initial stage in the town planning scheme for Dunfermline and Rosyth was reached on Friday, when a draft of the second plan required by the statute was submitted to the Town Planning Committee of the Town Council. Mr. W. R. Maxwell, the burgh engineer, was instructed to have the plan completed in time for submission to the next meeting of the council, when a recommendation will be brought forward to apply forthwith to the Local Government Board for Scotland for permission to proceed with the scheme.

BIRMINGHAM.—Two suites of cottage baths—one in St. Mary's Ward and the other in All Saints' Ward—were opened by the Lord Mayor of Birmingham on Thursday last week. The first building opened is situated in Brearley-street, off Newtown-row. It consists of nine private washing baths for men, and nine for women. The plan also provides for a further extension. The buildings have cost £2,150, exclusive of site. Messrs. W. and T. Webb have carried out the work. The second set of baths are situated in Bacehus-road, Winson Green, and provide accommodation for thirteen private washing baths for men and thirteen for women. The cost of the buildings, engineering works, and equipment was £2,311.

LONDON COUNTY HALL.—The hall to house the various departments of the London County Council, and to provide an adequate Council Chamber, of which the King will lay the foundation stone to-morrow (Saturday), is being built from plans by Mr. Ralph Knott, whose design was selected in the final competition in the autumn of 1907 by the assessors, Sir Aston Webb, R. E. Taylor, Norman Foster, and Mr. W. E. Riley, the architect to the Council. Mr. Knott's premised plans, with elevations, sections, and a detail drawing, were illustrated in our issue of February 7, 1908, but since then they have undergone three or four revisions. His modified design as approved by the Council was shown in our number for July 24, 1909, in two especially large sheets giving an elevation and perspective respectively. A further recasting of the river frontage design, from a water-colour perspective hung at the Academy, was published as a double page plate on April 29, 1910, and a modified plan of the principal or first floor, showing the central portion now in progress—the octagonal Council Chamber with the corri-

dors enclosing the walls, and the semi-circular approach from the river embankment, appeared in the BUILDING NEWS for May 6, 1910. A still further, but comparatively small, modification of the river approach was adopted in April last year, but this has not yet been illustrated; it consisted of the omission of the cross colonnade in the central portion of this front, the Order being carried round the crescent. The hall will be a building nine stories in height, 750 ft. in length, and almost 320 ft. in width. The site covers an area of 3½ acres, bounded by the Thames, Westminster Bridge approach, Belvedere-rail, and the L.C.C. Works Department; but for the present Messrs. Holloway's (builders) premises on the northern portion of the land next the Works Department remains in the occupation of that firm. The southern section of the area to be built upon is enclosed by an embankment wall 588 ft. in length, founded at a depth of 20 ft. below Ordnance datum and 12 ft. in width, by which some two acres of the site were reclaimed. This will eventually be extended in front of Messrs. Holloway's premises for a further 212 ft. The portion built has been constructed by Messrs. Price and Reeves, contractors, under the supervision of Mr. Maurice Fitzmaurice, C.M.G., chief engineer to the council. Mr. E. Tabor being the resident engineer. The wall has been constructed in cement concrete, faced with Cornish granite ashlar, and corresponds with those facing the Victoria and Albert Embankments. The contract for the foundations of the hall was carried out by Messrs. F. and H. F. Higgs, of Loughborough Junction; and another contract, that for the substructure, has been taken by Messrs. Charles Wall, Limited, and is now being completed.

COMPETITIONS.

BLACKWOOD.—Hall.—Members and Licentiate of the Royal Institute of British Architects must not take part in the above competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

SOFIA.—With reference to the competition for designs for new municipal buildings at Sofia, H. M. Vice-Consul in that capital (Mr. W. B. Heard) reports that the prize for a design for the new municipal palace was not awarded, but amounts of 3,250 fr. (£130) and 2,250 fr. (£90) were paid for the two best designs, submitted by Messrs. T. Lazareff and Alexander Dondoukoff. Sofia, and 1,000 fr. (£40) for the third best, submitted by M. Nesheff, architect, Sofia. It is understood that the design for the palace will be based on the above-mentioned plans, and at a later date the construction of the building will be put up to public contract.

SPENNYMOOR.—Mr. James Garry, F.R.I.B.A., of Church-street, West Hartlepool, the assessor appointed by the Spenny-moor Urban District Council, has received the tender of the assessor's three sets of plans submitted for the erection of market, market shops, council-chamber, offices, and public hall, has made the awards as follows: First prize, Mr. George T. Wellburn, Albert-road, Middlesbrough; second, Messrs. Clark and Mossop, F.F.R.I.B.A., of Peckhams, Darlington; and third, Mr. A. Farndale, Kilton Lodge, Drottlen.

WARRINGTON.—Oakwood Avenue Council Schools.—Members and Licentiate of the Royal Institute of British Architects must not take part in the above competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

Mr. F. Heather, of Winchester, has been cleared surveyor to the South Stoneham rural district council in succession to Mr. W. J. Porter, now surveyor for Andover district under the Hampshire County Council.

The plans committee of the Lancashire Asylum board have approved plans for a building for the accommodation of 115 female private patients and 12 female pauper patients at the Lancaster Asylum, at an estimated cost of £30,000.

Our Illustrations.

CHINA SHOWROOMS, OXFORD STREET, W.

The photographs and plans illustrated here will show some of the work recently carried out for Messrs. P. and C. Osler, Ltd., at 100, Oxford-street, W., and in Newman-mews adjoining. The new work comprised a warehouse and stock-rooms fronting to Newman-mews, and four new showrooms for electric-light fittings, range of three china galleries, studio, offices, and grand staircase. The work has been carried out from the designs of Mr. George Hornblower, F.R.I.B.A., of Devonshire-terrace, Portland-place, W. Messrs. Watson Bros., of Hallam-street, Portland-place, were the builders for the first section of the work—the warehouse and stock-rooms and garage and Messrs. Sabey and Son, Ltd., of St. Peter's-street, Islington, carried out the remainder of the undertaking.

PALENCIA CATHEDRAL, SPAIN: INTERIOR. LOOKING EAST.

Those who visit Palencia in quest of the earlier and purer forms of Spanish architectural beauty are likely to be disappointed with the city, and the Cathedral affords few, if any, of the finest examples of old church furniture of the 14th century. This church, dedicated to St. Andrew, occupies an unusually high position on the edge of a hill sloping away on the western face towards the river Carrion. The dates of the building vary from 1321 to about the middle of the 16th century; the choir is attributed to 1534, the cloisters being a year later; but the work was a very long while in hand and the details, somewhat late, of the 16th-century type, makes the architecture inconsistent with that statement. Being groined throughout, the Cathedral is conceived undoubtedly on a grand scale, a telling and impressive effect is produced, with a well-developed triforium enriched by big traceried openings. The arrangement of the Coro in the nave masks the somewhat faulty proportions of the choir, which would be noticeable, could the whole be seen at once. It is doubtful if any of the great cathedrals of the Middle Ages were ever really intended to be viewed in this way, and the removal of some of the old screens in our English cathedrals certainly has much impaired their effect for this very reason. The massive breadth of the nave columns at Palencia and the width of the nave aisles, produced a feeling of fine result. Two of the five bays of the nave, which is over 36 ft. wide, are occupied by the Trascoro, and there is an altar against the western face of the extremely rich Plateresque screen, with a retable consisting of eight small Flemish paintings. In front of this altar, as seen in the accompanying beautiful drawing, reproduced as our plates to-day, stands a canopy which leads to the Tomb (or is it the well?) of the titular saint, St. Andrew. To the left occurs the tattered pulpit, which, like the stalls in the choir, is rather Flemish in style. El Maestro Centellas, a Valencian, executed the stalls in 1410; but in 1518, Pedro de Guadalupe ordered to move them, for they were hindered the figures for half the last named amount. Particulars of this kind are important, because they remove any doubt as to the location of these stalls from 1410 till 1518, during which century of time they had been in their proper relation with the sanctuary and in the choir. Their re-erection in the nave, as these dates decide, then took place. It may here be noted that a similar change also happened in the choir arrangement in Burgos, about the same period. The position of the coro in the nave, more universal in Spain, with the stalls separated from the altar, was not known till the comparatively late date mentioned above.

*We give this reproduction of Mr. Gooden's review in our American contemporary as a contribution to the art, of course, unable to reproduce the accompanying illustrations. It might perhaps have been better had the book reached us in its ordinary way for review, and the expression of our own opinion thereon. We do not, of course, review reviews.—Ed. "B. N."

The apse at Palencia is shut in with screens covered by a groined gallery, curiously occupied by an unimportant dark chapel. Behind the High altar is a wall which shuts off the first bay of the choir west of the apse, the next two bays westward being walled in on the north and south, and extending so far as the transepts, which is open, excepting the railings defining the passage from the choir to the choir. The effect is confused, and it is contrary to the original and evident intention of the planners of the building. A level processional path round the aisles has been made by lowering the eastern floors of the church to the extent of 3ft. in some parts.

SARDINIA HOUSE, LINCOLN'S INN FIELDS.

This new building, only one door from Kingsway, closely adjoins the site of old Sardinia House, and is immediately opposite the proposed new offices of the Public Trustee and Lunacy Commissioners. The building is of red brick and Portland stone, and it is of fireproof construction throughout. It has eight floors, including the basement, all of which are arranged for use as

were ever completed during the days of its builder, Henry Lord D'Aubency, a favourite of Henry VIII., who died in 1548, shortly after which date the property was allocated to the Crown. It has been remarked how singular it is that Barrington Court embodies no evidence of heraldic devices—a fact the more unaccountable seeing that its builder, created Earl of Bridgewater by the King in 1539, was personally connected with the pageantry of the Court and fully cognisant with such matters. Another point about Barrington is its freedom from the influence of architectural precedents, and this may be due to the circumstance that no older building remained on the site to be incorporated with the mansion. It was built of Ham Hill stone. Much of the interior work belonged to the days of Queen Anne. Edward VI. gave the estate in 1553 to Henry, Duke of Suffolk, who sold the property to William Clifton. This family retained it till 1605, at which date Barrington passed by purchase into the Montacute estates when Sir Thomas Phelps became the owner. His heir raised money, however, upon the property by mortgage in 1621, the result being that the

which this structure was originally situated fell into disuse, and were subsequently built upon. The music-room was subsequently used for some time as a Masonic lodge, and is now occupied as a studio by Messrs. A. Seward and Co., Ltd., the stained-glass artists.

JACOBAN PEWING, MESSING CHURCH, ESSEX.

Messing was anciently written "Massings" and "Methings." The village and parish are situated close to the borders of Tipree Heath, which is partly within this parish. The Church of All Saints is an ancient building of flint with stone dressings, and somewhat mixed in style. The building consists of nave, transept, tower, and chancel, which last is lined with oak panelling, obviously of the reign of James I. This oak panelling was restored some while ago by the Earl of Verulam, and is believed to have originally belonged to the old hall. A tomb to commemorate William de Messing, founder of the church, formerly occupied a recessed arch in the north wall; but this has unfortunately been destroyed. There remains, however, the brass figure of a lady dated c. 1530, though the inscription is missing. The east window is filled with stained glass, supposed to be by Van Linge. During the Civil Wars this glass was taken out and buried in an ancient solid oak chest until peace was declared. It was then unearched and reinstated. The President of the British Archaeological Institute, during a recent visit stated that in his opinion this panelling was one of the finest pieces of its kind to be seen in the country. We are indebted to Mr. E. S. D. Fromant, of Colchester, for the loan of these details. The recent underpinning of the south porch and wall of Messing Church was carried out under the supervision of Mr. J. W. Start, architect, of Colchester.

CHIPS.

The urban district council of Kettering have adopted amended plans by the surveyor for a new corn-exchange, estimated to cost £2,700.

Plans have been approved by the corporation of West Ham for building baths in Oriental-road, Silvertown. The estimated outlay is £12,000.

The memorial-stone of the completion of St. John Baptist's Parish Church, Southend-on-Sea, was laid on Wednesday. The total cost was £5,000, of which £3,000 still remains to be raised. The additions provide accommodation for 130 more people.

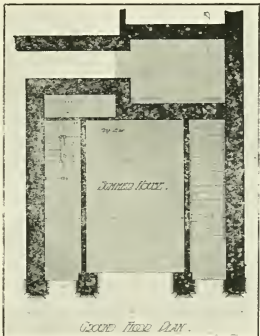
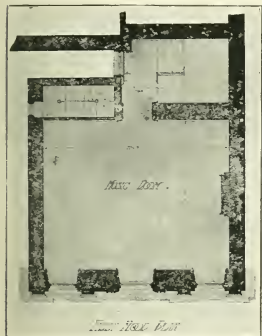
The corporation of Cleethorpe have appointed Mr. J. H. Walters to the position of borough surveyor, water engineer, surveyor to the U.D.C., sewage works engineer, and inspector of markets and fairs, at a salary of £150 per annum, rising to £200.

It is officially stated that the condition of the famous Galilee Church, at the west end of Durham Cathedral, "is such as to render its continued use unsafe." The dean and chapter announce that the daily services hitherto held in the chapel will be conducted in the nave of the cathedral until further notice.

In the near future the improvements committee of the London County Council will recommend a contribution of half the cost of widening Leadenhall-street, which is to be undertaken by the Corporation of London at a cost of £252,000. A short time ago the council refused the grant for this improvement, negotiations for which were begun twelve years since.

The Bishop of Truro dedicated the new altar in the Chapel of the Intercession, Lis Escep, on Sunday. The altar is of oak, and was designed by Mr. Edmund Sedding. The Jacobean style is also in keeping with the chapel, in the centre of the front panel of oak is a small circular panel containing the Cross and other emblems of Christ surrounded by a border of foliage projecting above the ground of the panel.

The death has occurred at Lee, Kent, in his eighty-second year, of Mr. Walter Huxtable, for many years the head of a firm of builders and sanitary surveyors in Cannon-street. He was a member of the City Corporation from 1879 until 1905, in succession to his father, who had been a corporator for 30 years. He had also served as Master of the Salters' Company in 1893, and was rector-warden of the Painter-Stainers Company in 1890-91.



EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM.

offices. The average letting floor-space on every story is 3,000ft., and there is lavatory accommodation on each floor for principals, and for clerks in the basement. Separate accommodation for ladies occurs on the top floor. Special attention has been paid to saving of passage-room. The building has been finished about three months, and the floor-space is already let. The builders were Messrs. King and Arnell, Ltd., of No. 255, West-End-lane, West Hampstead, and the architects Messrs. Trehearne and Norman, who occupy offices in the building. This firm is now erecting the "Central House" in Kingsway, at the corner of Kemble-street.

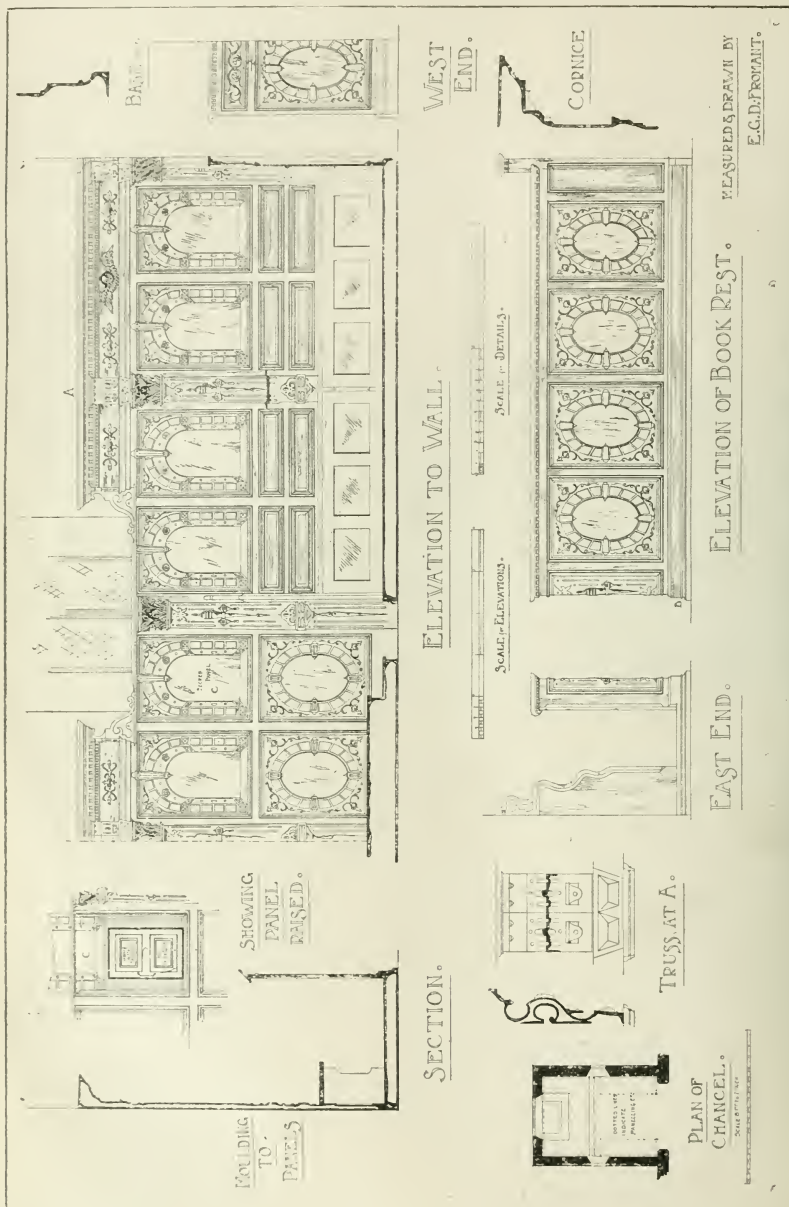
BARRINGTON COURT AND PARSONAGE FARM, STOKE-SUB-HAMDEN, SOMERSETSHIRE.

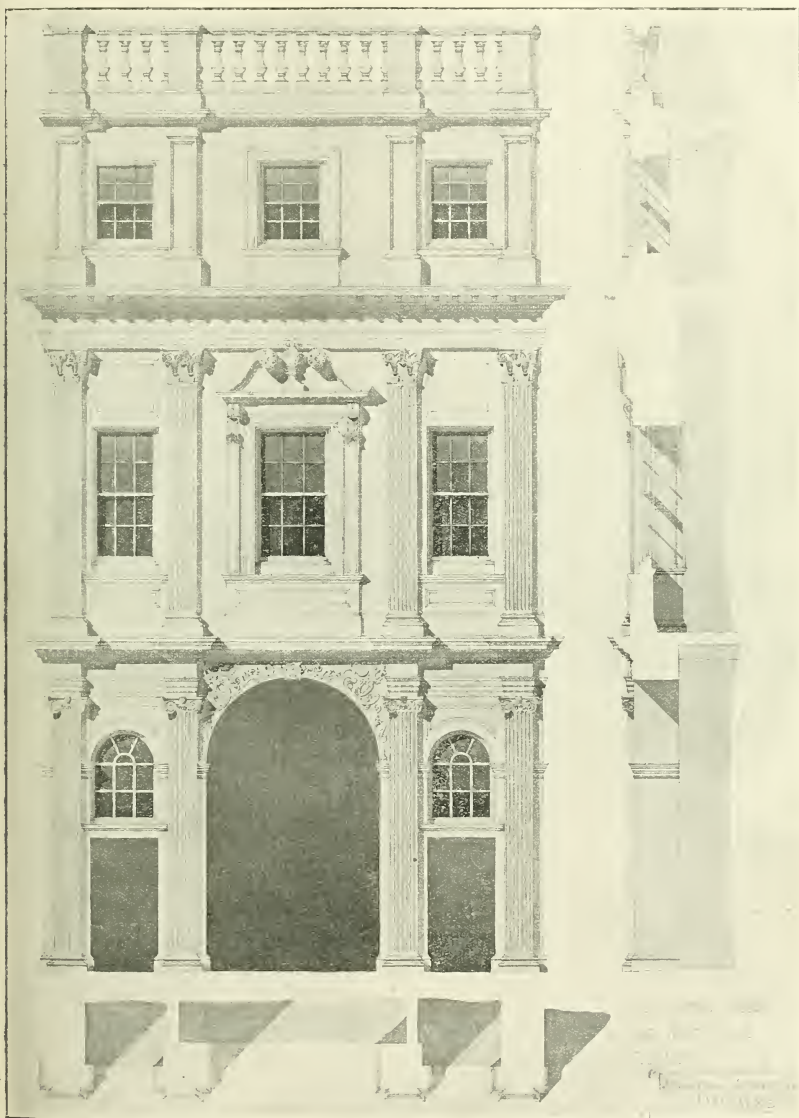
Barrington Court was acquired by the National Trust in 1907, after having been utilised as a farmhouse for many years, during the greater part of which period, however, the structure seemingly had not suffered so much as might have been the case. Barrington Court, though denuded of its interior furnishings, is an incomparable example of a finely-proportioned Tudor house, excellently planned, and admirably adapted to its site and our climate. The hall, which contains the original fireplace, is not distinguished externally by any special treatment. The aspect of the house is towards the S.E., and Mr. Follett's carefully-measured plan is marked by its principal dimensions. It is doubtful whether the furnishings of the house

strodes before long possessed the holding, which their family retained till 1755, after which the period of neglect and inferior occupation seems to have set in. till, fortunately, this beautiful building was saved from demolition, as above mentioned, by public subscription.—The Parsonage at Stoke-sub-Hamden, hard by, was erected as a clergy-house for five chaplains, and endowed as a chantry. It has been long used as a farmhouse, but the bell-turret on the front gable still remains. The screen and gallery over it in the hall have been removed. Illustrations of Stoke-sub-Hamden Church will be found in the BUILDING NEWS for August 17, 1883. It is an extremely interesting example of Early work with two hagioscopes. The drawings given herewith to-day are the work of Mr. S. G. Follett, Pugin Student of the R.I.B.A.

EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM, LANCASTER.

This structure was erected in the early part of the 18th century, in the Town Garden, afterwards in possession of Rev. Dr. Marton, vicar of Lancaster, 1767 to 1794. It was adjoined on three sides by other buildings which accounts for its peculiarity. The ground floor was utilised as a summer-house, and the first floor as a music-room. This room is elaborately decorated with beautiful plasterwork of Italian workmanship, including busts of the Nine Muses, the Caesars, and others, with groups of musical instruments, weapons, etc. The gardens in





EIGHTEENTH-CENTURY SUMMER-HOUSE AND MUSIC-ROOM, LANCASTER.

Measured and drawn by Mr. J. M. CLARKE.

"TESTING OF MATERIALS" USED IN REINFORCED CONCRETE.*

By Mr. A. ALBAN H. SCOTT, M.R.San.Inst.
(Member of Council S.A.)

(1) When I was honoured by the invitation from your President and the Council to give a paper on "The Testing of Building Materials," I originally thought of treating the matter from a broad standpoint with regard to the various materials used in ordinary building construction; but upon further consideration I came to the conclusion that concrete and reinforced concrete were now being used so extensively and for such a variety of purposes, and its possibilities are so expansive, that it required at the present stage some further careful investigation by architects, both as to the strength and properties of the various units, as well as the finished material.

(2) The necessity for some very serious consideration has been particularly impressed upon my mind, in view of the fact that certain figures are being laid down as the ultimate strength of concrete by the various reports and regulations issued comparatively recently.

(3) These figures seem to have been based upon results obtained from laboratory-made specimens only, made under the most favourable conditions, without any allowance for the more or less rough methods which are only obtainable at present on the actual construction. In making some of the laboratory test specimens, the materials are very accurately gauged, thoroughly and evenly mixed, and, in lieu of the ordinary punning and slight ramming (if any) you get on the works, they are subjected to pounding down with a heavy hammer, and thus getting an artificial result—a result which is impossible to attain under the most perfect conditions obtainable on even a perfectly organised job. The test results which we shall have before us this evening are such that can be reasonably expected from work executed under a specification such as we published last year; but even these results can only be expected if professional supervision is given, not only to the general work, but also to the most minute points. In the past there has been a difficulty, for reinforced concrete demands greater study than any other material used in constructional works. Architects, except for a comparative few, have until recently been too slow in making themselves acquainted and proficient in this class of construction. Engineers were still worse, and clerks of works and general foremen who are really fit to take charge of a fair-sized job of reinforced concrete are few and far between. All this, however, is now being rapidly changed, and it has been realised that concrete and reinforced concrete are entirely different materials.

(4) It has also seemed to me to be inconsistent to take elaborate precautions to obtain cement of a high and even quality, and treat the other component parts as if the ultimate strength of the concrete did not also rely upon their influence.

(5) The following is an outline procedure I would suggest should generally be adopted with regard to the testing of materials for reinforced-concrete work.

Testing and experimental works.

(7) Testing of Cement.—The cement to be tested from samples taken from the bulk, such samples being taken from various positions of the bins at the makers' works. After the cement has arrived on the job, samples again taken from various bags, thoroughly mixed, and again tested. Further tests made from time to time as the material is being used in the works, the number of these tests being regulated by the quantity of the cement, and the time taken in using same.

(8) All tests on cement should be made in accordance with the latest specification of the British Standard Specification for Portland cement, with the further test for ascertaining resistance to thrusting stress of both, neat cement and also cement and sand, in the

| | Size. | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Not graded |
|--|----------------|------|------|------|------|------|------|------|------|----|----|----|------------|
| | Parts | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 1. Thames sand | P.C. of voids. | — | — | — | — | 30.0 | 30.0 | 35.5 | 34.5 | — | — | — | |
| 2 Sea sand on shore 26 years | | — | — | — | — | 26.7 | 29.5 | 32.0 | — | — | — | — | |
| 3 Ordinary Thames sand | | — | — | — | — | — | — | — | — | — | — | — | 23.3 |
| 4 River sand | | — | — | — | — | — | — | — | — | — | — | — | 32.0 |
| 5 Sand from crushed rock | | — | — | — | — | — | — | — | — | — | — | — | 33.2 |
| 6 Crushed rock | | 40.1 | — | — | — | — | — | — | — | — | — | — | |
| 7 Thames ballast, graded | | 48.2 | 44.5 | 43.1 | 42.5 | — | — | — | — | — | — | — | |
| 8 Sea ballast | | 41.8 | 42.3 | 41.8 | 42.0 | — | — | — | — | — | — | — | |
| 9 Ballast and sand as from bank to mass only and not retained on apertures | | 37.0 | 38.0 | 37.6 | 35.6 | — | — | — | — | — | — | — | |
| 10 Thames sand and ballast not crushed | Parts | — | — | — | — | 1 | 1 | 2 | 2 | — | — | — | |
| | | — | — | — | — | — | — | 32.0 | — | — | — | — | |
| | Parts | 1 | 2 | 3 | 4 | 1 | 1 | 2 | 2 | — | — | — | |
| | | — | — | — | — | — | — | 26.7 | — | — | — | — | |
| | | — | — | — | — | — | — | 42.3 | — | — | — | — | |
| | | — | — | — | — | — | — | 29.3 | — | — | — | — | |
| | | — | — | — | — | — | — | 25.1 | — | — | — | — | |
| 11 Sea sand and ballast | Parts | 1 | 1 | 4 | 3 | 1 | 1 | 3 | — | — | — | — | |
| | | — | — | — | — | — | — | 39.6 | — | — | — | — | |
| | | 1 | 1 | 4 | 3 | 1 | 1 | 3 | — | — | — | — | |
| | | — | — | — | — | — | — | 23.9 | — | — | — | — | |
| 12 Standard sand | Parts | — | — | — | — | — | — | 34.5 | — | — | — | — | |

same proportions used for the tensional briquette.

(9) Aggregate or Coarse Material.—A sample in bulk to be delivered on to the works, a sample taken and tested—first, for freedom from loam and other foreign matter; second, for the proportion of the various sizes of the crushed material; third, for the amount of voids; fourth, for specific gravity. Tests repeated on the material being used in the works, from time to time as may be considered desirable.

(10) Sand.—Sand to be treated in exactly the same way as aggregate, and, in addition, a test for the amount of material that will pass a sieve of 1.50in. by 1.50in. apertures should be ascertained. This, which can be called "flour," should be rejected.

(11) Water is tested to see that it contains no unusual or injurious impurities.

(12) Steel to be first inspected at the makers' works with a view to ascertaining—first, whether welds have been made; second, for surface defects; third, correctness of dimensions.

(13) Every rod over 2in. diameter must be stamped with a die having been inspected. Sample lengths are taken from the actual rods, which are duly stamped and sent to the testing works for the purpose of ascertaining—first, their ultimate strength; second, their elastic limit; third, their elongation and contraction of area; fourth, to observe the structure of the metal at fracture—whether the same is granular, or fibrous; fifth, bending test. All these tests to apply to rods and wire from and including 3-16in. diameter and upwards.

(14) Concrete.—The test specimens of concrete should be of a standard size of 6in. cube. Six specimens made for each test, three made in the laboratory and three on the works. The cement for each six sets of specimens to be taken from the same consignment. The laboratory tests specimens should be made, as far as possible, on practical lines, so that the result should be such as can be reasonably expected from concrete in the actual work.

(15) All specimen pieces made on the works should be made from concrete taken from the actual mixing platform. All such specimens should be made in metal moulds, and the concrete worked in by punning and tamping to the same degree as has actually taken place in this structure. Six test cubes should be used for each test, and the minimum tests should be made at the following periods:—Seven days, 28 days, 56 days, 90 days, and one year.

For the purpose of record and research work such tests should be carried out at the following periods:—Seven days, 28 days, 56 days, 90 days, 6 months, 9 months, 12 months, 2 years, 3 years, 4 years, and 5 years.

(16) Centering.—No mechanical tests are required for this; but when the strutting is being placed into position, rough calculations should be made, to see if any undue deflection or movement is likely to take place during the process of placing the moist concrete into position, and inspection made to see that the joints have been properly filled up by rubbing with hard bar soap or other material, to prevent dripping of the cement and sand.

(17) We might now consider whether the tests mentioned above are reasonably required, and before proceeding to do so, a few remarks on the work the material is called upon to do may not be out of place. In reinforced concrete the concrete takes compression and shear; the steel taking all the tension and assisting for shear and compressional strains. The concrete being stressed to not more than 600lb. per square inch in compression, and 100lb. per square inch in shear; the steel in compression in beams not more than nine times per square inch that of the adjoining concrete, and in columns not more than fifteen times that of the adjoining concrete, and steel in tension 15,000lb. per square inch, and the adhesion of the concrete to the steel 100lb. per square inch of actual contact.

(18) These figures being subject to various conditions, such as the efficient tying in of the steel in compression, to prevent bulging of the rods, proper proportion of metal to the concrete, and spacing of the steel. In the case of columns the effective area of concrete is only taken as that part which is hooped in by the ties to the vertical steel members.

(19) If we are working to a factor of safety of a fourth of the ultimate, the ultimate resistance to thrusting stress of the concrete should not be less than 2,400lb. per square inch, the resistance of concrete to shear 400lb. per square inch, and the steel 60,000 per square inch ultimate tensile.

(20) These figures show that all the materials are called upon to be of high efficiency, and to work in harmony and simultaneously together, and have been adopted in consideration not only of their ultimate resistance, but also the relative coefficient of elasticity.

(21) The work is designed on the assumption that the materials actually used in the construction are capable of resisting these stresses.

(22) The following are a few reasons why the author considers the tests necessary—

Aggregate and Coarse Material.—It has been found that most aggregates (unless washed) contain loam and other foreign matter. A sample of river aggregate recently tested gave as much as 7 per cent. of loam, and most loams have a surprising covering power, being of the very finest of "flour," and, consequently, when the

* Read before the Society of Architects, March 7, 1912.

cement is added there is a thin film between the cement and the actual siliceous material, thus preventing the cementing together of the particles.

Some time ago it was advocated in certain quarters that the presence of loam in aggregate did not decrease, but rather increased, the strength of concrete; a slight mistake was made there: the material which was mistaken for "loam" actually contained certain cementing properties which had the effect of making the concrete a richer mixture.

(23) With aggregates which are practically uniform in size, or if the various sizes are not properly graded, proper bond is not obtained between the various materials as the mortar is concentrated, and thus a portion of the mixture is deficient in cementing materials; therefore it is most desirable that the grading and voids should be worked out very carefully, and with certain exceptions, it is found, within limits, that the grading which gives the smallest amount of voids, the aggregate and sand results in concrete of greater strength. With aggregate and sand containing a high percentage of voids, a greater proportion of cement is required.

It is possible to arrange these results in various ways but the annexed table may be found convenient.

(25) In this connection it should be remembered that as the number of particles increase, so the proportion of the cement to the whole should be also increased, owing to the greater covering power required. A table made with a very small amount of aggregate and a large amount of sand, with the usual proportions of cement, gave an ultimate resistance to thrusting strain of about 600lb. per square inch; such low result was entirely owing to the fact that the usual amount of cement in that case was not sufficient to properly cover each particle of the cement and aggregate, and a perfectly cemented and homogeneous mass was not obtained.

(To be continued.)

The late Mr. Thomas Miller Rickman, A.R.I.B.A., the well known quantity surveyor, of Picheas-gardens, Earls Court, President of the Architectural Association in 1854-55, and President of the Surveyors' Institute in 1899, who died on February 10, aged eighty-four years, left an estate the gross value of £16,931.

The arbitrator's award as to the purchase price to be paid by the corporation of Belfast for the Cavehill and Whitwell Terraces was £36,155. With this the corporation disagreed, and the matter was taken to court, the award being set aside. After further inquiry, however, a second award of the same amount was made, and this time the award was upheld by the Court. The Corporation has now decided to abide by this decision.

Lieutenant-Colonel A. Charles Smith, Royal Engineers, died at 87, Cadogan-gardens, on the 3rd inst., having attained 70 years of age. Lieutenant Colonel Smith served in many parts of the Madras Presidency, becoming there superintending engineer and later chief engineer. On retirement in 1894, he was named an appointment in the engineering department of the Local Government Board. He retired from that department four years ago, and afterwards resided in London.

Sir Benjamin Scott, Mayor of Carlisle, has presented to the corporation art-gallery of that city the picture known as "The Cricket Match," by the famous Cumberland artist, Sam Brough. On the occasion of his retirement from the position of borough engineer and from the Southport, Lancs., Mr. Richard Hirst was presented with a gold watch, suitably inscribed, by the workmen of the highway, cleansing, and sewage-works departments of the corporation.

At Bristol University on Monday night, Mr. Henry Aldridge, secretary of the National Housing and Town Planning Council, gave the first of three lectures on "Town-Planning in Practice." He described the course of legislation on this subject in various countries, and gave details of the new powers conferred on local authorities in England and Scotland. Next Monday he will deal with the question in relation to public health, municipal economy, and the provision of amenities, and in his third and last lecture, to be delivered on the 18th inst., the topic will be "Town-Planning Administration in the Future."

PROFESSIONAL AND TRADE SOCIETIES.

AMALGAMATION OF THE AUCTIONEERS' AND ESTATE AGENTS' INSTITUTES.

The amalgamation of the Incorporated Estate Agents' Institute with the Auctioneers' Institute of the United Kingdom (Incorporated) was formally agreed to at an extraordinary general meeting of the Estate Agents' Institute held on Tuesday at Hanover-square. Mr. Howard Frank, the president, was in the chair, and there was a large attendance of members, including Mr. James Boyton, M.P., who is a past president of both organisations. It was resolved to wind up the Estate Agents' Institute voluntarily. Mr. W. H. Wells and Mr. W. J. Taylor being appointed to carry out the formalities.

ARCHITECTURAL ASSOCIATION OF IRELAND.

A general meeting of the above society was held on Tuesday week. The president, Mr. Page L. Dickinson, M.R.I.A.I., occupied the chair. Mr. Connor O'Brien read a paper entitled "The Development of the National Style of Gothic Architecture in Ireland," which was illustrated by numerous photographs and lantern views of the principal ecclesiastical buildings erected in Ireland between the 12th and 14th centuries. Mr. Connor O'Brien found a precedent for the development of a national Gothic style in the work done in Ireland during the 13th and 14th centuries, when great originality of design and independence of treatment were shown by the Irish builders. The lecturer also called attention to the excellent carving and workmanship to be found in many of the tombs and memorials to the dead in our abbeys. In proposing a vote of thanks to the lecturer, Mr. R. M. Butler, M.R.I.A.I., suggested, as an explanation of the great difference in detail and treatment often to be found in buildings of the same period in Ireland, that many of these buildings owed their erection to the English colonists, and so naturally differ in their details and mouldings from those built by the Irish people. Mr. Geo. L. O'Connor briefly seconded the vote of thanks, which was supported by Mr. P. J. Lynch, M.R.I.A.I., and Professor Scott.

EDINBURGH ARCHITECTURAL ASSOCIATION.

A lecture on "The Restorer and His Attitude Toward Old Work" was delivered by Mr. William Davidson on February 28. Mr. Davidson, who dealt mainly with ecclesiastical restorations, generally into four classes—viz. Historical, Antiquarian, Esthetic, and Ritualistic. The attitude of each was described. The lecturer stated that, for the ideal restoration, all four standpoints must be considered, and, while a profound reverence and veneration must be felt for all existing beautiful old work, it must be remembered that a church must be suitable for its purpose as a place of worship, and not considered merely as a sanctified relic of the past. The attitude of the Antiquarian, being absolutely imitative, The architect should not make the restoration an opportunity for the display and glorification of his own personality at the expense of the history of the building; but at the same time a sentimental zeal for the work of the dead should not prevent him from creating a beautiful and perfect unity where such was possible. Mr. Davidson referred to the recent intervention of "antiquarian" and "protection societies," and maintained that the craze for preserving past history, if carried to its logical conclusion, would lead to a dead stop in the architectural history of old buildings, which, if occupied for their original purpose, still had a living history. He admitted, however, that unused ruins—such as Holyrood, Linlithgow, Melrose, Fountains, Kirkstall, etc.—were, as a rule, best only partially preserved, and not restored. Many views were shown of restorations by Sir Gilbert Scott, Bodley, Oldrick Scott, Temple-Moore, Micklethwaite, Veir, Caröe, and others, which were analysed and criticised.

GLASGOW.—An instructive paper was

read last Friday night before the Royal Technical College Architectural Craftsmen's Society, by Mr. Robert Moon, on "Various Timbers and their Practical Uses." The lecturer referred to the rapidity with which supplies of the timbers presently in use were becoming exhausted, and confined himself mainly to the woods of the future, which must come from the giant forests of Western America. These, with the opening of the Panama Canal, should be placed on the British market in greater quantities and at lower rates.

HAMPSHIRE ASSOCIATION OF ARCHITECTS.

At a meeting of representative architects of the county, held at Southampton on Saturday last, it was decided to form a Hampshire Association of Architects on the lines of those affiliated to the R.I.B.A. Mr. R. F. Chisholm, F.R.I.B.A., presided. Draft rules were considered and passed, also declarations to be signed by members, associates, and associated craftsmen, the subscriptions being 10s. for members, and 5s. for others. Sir William Portal, Bt., F.S.A., proposed by Mr. R. M. Lucas, seconded by Mr. H. G. L. Hill, was elected president; Mr. N. C. H. Nisbett, A.R.I.B.A., proposed by Mr. W. Wheeler, seconded by Mr. A. F. Gutteridge, was elected vice-president and chairman of committee; and Mr. R. M. Lucas was elected hon. secretary and treasurer, with Mr. Ingham Sanders assisting. Communications from those desirous to join the association should be addressed to Mr. Lucas at Bargate Chambers, Southampton.

LIVERPOOL ARCHITECTURAL SOCIETY.

Mr. J. J. Burnet, Hon. LL.D., R.S.A., architect for the extensions of British Museum, delivered an interesting lecture on Monday evening in the Liverpool Architectural Society's rooms, 13, Harrington-street, under the presidency of Mr. Thornely. Mr. Burnet described in detail quite a multiplicity and variety of designs executed by himself in preparation for work done in various parts of the kingdom, illustrative photographs or drawings of which served greatly to enhance the effect of his descriptions. The lecturer was cordially thanked at the close.

LONDON MASTER BUILDERS' ASSOCIATION.

The fortieth annual general meeting was held in the Council Chamber, Koh-i-Noor House, Kingsway, W.C., at 4 p.m. on Thursday, February 29, 1912. The president, Mr. G. Bird Godson, presided, and afterwards Mr. James S. Holliday, the newly-appointed president. The following officers and members to fill up the vacancies on the executive council were elected for the coming year:—President, Mr. James S. Holliday (Messrs. Holliday and Greenwood, Ltd.); senior vice-president, Mr. Walter Lawrence, junior (Messrs. Walter Lawrence and Son); junior vice-president, Mr. W. F. Wallis, J.P. (Messrs. G. E. Wallis and Sons, Ltd.); treasurer, Mr. Edmond J. Hill (Messrs. Hinge and Hall, Ltd.); council, Mr. C. E. Allen (Messrs. Allen and Co., Ltd.), Mr. F. J. Gayer (Messrs. E. A. Roome and Co.), Mr. R. J. Holliday (Messrs. Holliday and Greenwood, Ltd.), Mr. F. M. May (Messrs. Holland and Hannen and Cubitts, Ltd.), Mr. F. G. Minter, Mr. W. J. Renshaw, Mr. Howell J. Williams, J.P., L.C.C. (Messrs. H. J. Williams, Ltd.), Mr. Hy. Wall (Messrs. Chas. Wall, Ltd.), Mr. Walter Wood (Messrs. F. and J. Wood); honorary auditor, Mr. E. S. Blake (Messrs. W. E. Blake, Ltd.). A hearty vote of thanks was given to Mr. G. Bird Godson for the able and assiduous manner in which he had discharged the duties of president during the past year. The Trade Disputes Act (1906) was considered, and the meeting desired unanimously to lodge a petition against the said Act in the House of Commons. Instructions were given to secure the signatures of all the members of the association.

ROMAN REMAINS IN BRITAIN.—Professor F. J. Havell delivered on "The Discoveries of Roman Remains in Britain in 1912" before the British Academy on

Wednesday week. Professor Haverfield said that there had been only one excavation on a great scale in 1911—that at Corbridge. Silchester and Caerwent were now finished for the present; Verulam had fallen through; Wroxeter, though in active preparation, had not yet been begun. Other excavations had been planned but never commenced, or commenced with imperfect means and inexperienced supervisors, or left with their results undescribed. He described the excavation at Corbridge, including the great storerooms, the rich debris of striking though damaged sculpture, the buildings of the western quarter, and the gold hoard of 150 coins, which is to be preserved in the British Museum. He also referred to some of the lesser excavations, including those at Cappuck, near Jedburgh, and the work done on the Wall of Hadrian, near Birdswald.

THE SOCIETY OF ARCHITECTS—The twenty-eighth annual dinner will be held on Friday, April 26, at the Holborn Restaurant, London, at 6.30 p.m. The chair will be occupied by the president, Mr. George E. Bond, J.P., who will be invited to accept the Society's Gold Medal in recognition of his long and valuable services. Applications for tickets (members and visitors, 7s. 6d. each, exclusive of wine) are being sent to Mr. C. F. Leslie, E.R. Hon. Secretary, or Mr. C. McArthur Butler, Secretary, 28, Bedford-square, W.C.

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY. On Wednesday, February 28, before the above society, Mr. G. W. Milburn, of York, read an interesting paper on "The Life and Work of William Etty, R.A., 1787-1849." Mr. A. B. Burleigh, Lieut. R.I.B.A., being in the chair. Imagine York without its William Etty, whose name and beautiful pictures are known and appreciated by every one of the choice and artistic work. His fine style of flesh painting is unsurpassed; whose noble conceptions are of the highest order of merit, and not, one thinks, unworthy to rank with the greatest masters of antiquity. Such a youth was the son of a York miller—a working printer on a newspaper, a Royal Academician, living a blameless life who grew to be a kind and gentle old man and an amiable and generous teacher of York art students. After securing his apprenticeship as printer on the *Hull Packet*, he went to London to stay with his uncle, and later was a student at the Royal Academy Schools, and eventually under Sir Thomas Lawrence. He thought long over his pictures, but executed them quickly. He succeeded John Flaxman as R.A. in 1828. He would generally spend the first and second evenings in making a charcoal outline, then go over the sketch with ordinary pen and ink, and then commence to paint. The York town of his birth was founded by Etty (and one of the first private schools, 1842). It commenced in the Hospital in St. Mary's Abbey ground, York. Among his first pupils was the family of the Moores. It was a custom of William Etty to take a female torso, place it in a convenient position, draw it for the students, then add other limbs to complete the figure, and show them how to drape it. He died at York in his sixty-third year.

Mrs. Parker, widow of the late Mr. F. W. Parker, F.R.I.B.A. of Russell-square, W.C., and Mowbray, Wilt. Kent, died on Tuesday last at 4 Mowbray Town at the advanced age of 88 years.

The stipendiary magistrate of Bradford delivered judgment on Friday on the summonses against Robert Ogden of New Hey Road, for breaches of the building bye-laws. He inflicted a fine of £5 and costs on each of seven summonses, and £1 and costs on each of seven other summonses.

The British Central Railway, through the tender of Messrs. Dick, Kerr and Co. Limited, by constructing and equipping the railway sidings at a price of £100,390 15s. 6d., the work to be completed in six months. Mr. J. H. J. A. Murray, Limited, of Belfast, had submitted a tender for £99,952 but they had not stated the period in which they were prepared to complete the work.

Correspondence.

UNIVERSITY BUILDINGS AT MANCHESTER.

To the Editor of the BUILDING NEWS.

SIR,—My attention has just been drawn to a note in your issue of February 23 relating to the University Buildings at Manchester. I think I ought to point out that the attribution of the Physics building and its extension to the late Alfred Waterhouse and myself is incorrect, the whole of these buildings being the work of Messrs. J. W. Beaumont and Son, of Manchester. Your informant has, probably, confused these buildings either with the Botany block, which was completed by me at the close of last year, or with the extensions of the museum, which are at the present time in progress from my designs. Yours, faithfully,

PAUL WATERHOUSE.

THE GUILD OF ARCHITECTS' ASSISTANTS AND A MINIMUM WAGE.

SIR,—Being deeply in sympathy with the efforts that are being made by the Guild of Architects' Assistants to raise the status of the subordinate members of our profession, I should like to make a few remarks. I should like to criticise, in a friendly spirit, one of the suggestions contained in the Guild's recently-distributed annual report for 1910-11.

The most important subject touched upon, from the assistants' point of view, is the minimum wage. It is with regard to the proposal for dealing with this matter that I should like to make a few remarks. The suggestion that a certain scale of minimum wages for a 39-hour week should be adopted, presumably throughout the whole country. The scale is to be regulated by age alone, and ability, experience, or qualifications other than those dependent on age, are to be ignored. It is stated that age and experience are inseparable and their average constant; surely a contention that cannot be upheld. Obviously, a man who stays in any one office, engaged upon one type of work, cannot have the same knowledge as another, who has widened the scope of his experience by entering different offices and finding employment in the planning, design, and construction of different classes of buildings.

Under the scheme suggested, an assistant spending no time in study or training of any description, except that supplied by the routine-work of the office, would benefit by an automatically rising scale of pay to just the same extent as his more energetic and enterprising fellow-worker, devoting much time and labour to self-improvement and the acquirement of professional knowledge.

The scheme will tend to discourage young men from healthy endeavour. For, excluding the exceptional man, as they suggest, by nothing but the slow process of time will his salary be raised. Moreover, in a profession such as ours, in which employment fluctuates so greatly with every boom or depression in trade, it will militate against the older men.

A big number of our most enterprising members are engaged in temporary work, passing from office to office, gaining valuable experience. They are a class without which much work could not be executed. Under the age qualification they would have to carry about and produce, when required, their birth certificates.

It is almost certain that the man of thirty years would have to make way for his fellow of twenty-eight, the possibly slight difference in experience being negligible from the standpoint of an employer anxious to keep down expenses. "Too old at forty" would become a bitter truth to many architects' assistants. Employers would take care never to allow themselves to be solicited with a man nearing that age. The assistant of thirty years, of thirty-eight years of age, who, under the circumstances, might justly suppose himself in a permanent berth, would, at the approach of the first trade depression, find that his services were no longer required. But, in spite of all efforts to impose an age qualification would not, by direct or indirect

means, some other test of ability make itself felt?

Employers would begin to ask themselves what it is that constitutes an assistant. Should the title be restricted to those who had been articled and passed an examination, or had other special experience? Probably three classes would develop—assistants, draughtsmen, and clerks—and to the first alone would the minimum wage be granted—and a minimum wage always tends to become a maximum. Draughtsmen and clerks would have to take less, and men who had entered the profession without being articled would find a great difficulty in obtaining recognition as assistants.

In consideration of the wage question, should not a distinction be made between London and the provinces, and the scale be based upon an examination test, in conjunction with a certain number of years of experience? In fact, to some extent, something of this nature is included in the section of the report dealing with "Education and the Assistant," where, in direct contradiction to their later suggestion, that age should be the sole criterion, the following paragraph occurs: "Examinations will become more important under the proposed Registration regime, and the Council desires to see them more closely allied to practical requirements, so that an assistant's successes may be recognised by principals as definite indications of his abilities, and that he is entitled to a minimum salary corresponding to the stage of examination success to which he has attained." The italics are mine.—I am, etc.,

ABILITY.

The salary of the surveyor to the Uckfield Rural District Council is to be increased by £65 per annum.

A marriage has been arranged, and will shortly take place, which, between Robert Weir-Schultz, of The Barn, Hartley Wintney, and Thyra Macdonald, daughter of the late Alexander James Macdonald, of Milland-place, Sandown, and of Mrs. Macdonald, 66, Drayton-gardens.

The new Midland Adelphi Hotel, Liverpool, just approaching completion, is to be opened on Tuesday, 26th inst. Members of the Liverpool Architectural Society on Saturday afternoon inspected the new portion of the hotel, under the guidance of Mr. R. F. Atkinson, the architect. At the conclusion of the tour, Mr. Arnold Thorne, president of the society, proposed a vote of thanks to Mr. Atkinson.

At the annual meeting of the Scottish Arts Club, held at the clubhouse, Rutland-square, Edinburgh, on Saturday, a vote of condolence was passed to the relations of the president, Mr. G. Straton Fernier, R.I., whose interment in Comely-bank Cemetery had taken place that afternoon. Mr. Straton Fernier was elected hon. secretary, and Mr. W. Beattie Brown, architect, was elected to a vacancy on the council.

An inquiry was held at the North Stafford Hotel, Stoke-on-Trent, on Friday, on behalf of the Leitch Railway Committee, in reference to a proposal by the North Staffordshire Railway Company, to construct a new light railway between Newcastle-under-Lyme and Trentham. Mr. G. C. Crobb, chairman of the Leitch railway company, explained the plans, and stated that the estimated outlay was £127,210, exclusive of rolling stock.

The Liverpool Cathedral committee, at their meeting on Monday, received a report stating that work had been commenced on both the organ and the records. The organ is the gift of Mrs. James Barrow, of Waterloo, who has contributed £15,000 as the cost. For the records, Mrs. James Marke Wood has given £10,000. The erection of the cathedral is steadily progressing, and it is expected that the roof will be raised during the past month; the choir walls have now reached a height of 118ft. 6in.

At a meeting of the town council of Barrow-in-Furness on Monday, it was reported that there was serious overcrowding in several parts of the town. In the discussion, the Vice-Mayor was taken up by a number of hands for whom there was no house accommodation, and in some cases three and four and five families were living in the same house. House-owners had been classed as applicants for houses, and would-be tenants were offering £1 and 7s. for a key. Labour Party councillors urged the council to build municipal artisan dwellings to meet the demand. The overcrowding question was referred to the health committee.

LEGAL INTELLIGENCE.

REER HOUSE ARBITRATION IN HACKNEY.—At the London Sessions on Friday, before Mr. A. J. Lawrie and a special jury, Mann, Crossman, and Paulin (Limited) claimed compensation for the compulsory acquisition of the premises at the Essex Arms, beerhouse, Mare-street, Hackney, in connection with the Mare-street improvement, from the London County Council acting on behalf of the Hackney Borough Council. Mr. Freeman, K.C., and Mr. E. Robertson represented the claimants. Mr. E. Morten, K.C., and Mr. W. J. Jeeves appeared for the L.C.C. The jury awarded the claimants the sum of £5,000.

A MOSTON BUILDER'S FAILURE.—Thomas Marriott Moore, who formerly traded as a builder and a builders' merchant in Gill-street, Blackley, applied for his discharge from bankruptcy in the Manchester County Court on Friday. The Official Receiver (Mr. J. Grant Gibson) reported that the debtor's liabilities were estimated at £1,541 6s. 9d. The assets, estimated at £1,021 2s. 6d., had realised only £270 18s. 11d., as the committee of inspection were not disposed to take proceedings to recover an alleged debt of £908 against which there was a counter-claim for £1,189 by owners of property in Moston, which had been realised by the debtor. For those owners the debtor had erected 160 houses at an even price of £160 a house. The debtor's trading had been conducted with a capital of £475 lent to him by his wife. When disputes arose, the debtor had been ordering for whom he built the houses, the debtor consulted architects who while expressing their belief that the debtor might make good his claim up to £260, and that the counter-claim contained in the items there were either overcharges or not chargeable at all—said that the sum of £160 per house was totally inadequate for the work done, and that "it was difficult to understand how anyone could fail to see that the bankrupt, before the builder would reach him, had entered into such agreements." Judge Mellor said he did not know that it was wise to encourage the speculative builder who ran houses up in this region, but on such narrow margins that a slightest bit of bad luck upset him and brought him down. The discharge would be granted, but subject to two years' suspension.

The town-hall and municipal buildings at Oldham are about to be extended by the corporation from plans by Messrs. Taylor and Sumner, of Queen-street, in that borough.

The Port of London Authority announce that, in addition to the construction of a large new dock it has been decided to provide additional facilities by the construction of a riverside wharf at Tibbury.

Mr. M. J. Rendall, headmaster of Winchester College, formally laid on Saturday a memorial stone of the first batch of eighty-two houses for the accommodation of the working classes of the city. They are being built by the Winchester Working Men's Housing Association, of which Mr. Rendall is chairman.

The Wandsworth Borough Council decided on Wednesday to contribute £3,000 towards acquiring twenty acres of land for public use at Wandsworth Common, provided that the land is acquired by the Wandsworth County Council, and that £3,000 is contributed by the Wandsworth Borough Council and by subscription. The land is the property of the Royal Patriotic Commissioners.

The Local Government Board have sanctioned the scheme prepared by Mr. Harry W. Taylor, A.M.I.C.E., Messrs. T. G. and W. H. Wallis, Ltd., of Eastle-upon-Tyne and Birmingham, for the augmentation of the water supply of the Burgh of Langholm. By this scheme additional springs in the Great Valley will be tapped, a large new reservoir built and the distribution in the town considerably improved. The cost is about £6,000, and the work will be commenced at once.

At a meeting of the Berks Dairy Farmers' Association and the Berks and Oxon Chamber of Agriculture held at Reading on Sunday, Mr. Hunsman, President of the Board of Agriculture and Fisheries, announced that in addition to the block grant of £1,300 a year given by the Board to University College, Reading, in aid of agriculture and horticulture, and in addition to a further grant of £1,000 a year recently offered to the College in aid of advisory work among farmers, the Board of Agriculture would provide £500 a year and one-half of the capital cost of a building with the object of establishing a dairying research station at the college, on condition that the grant of £2,500 a year was supplemented by £1,300 a year provided locally for the purpose.

Our Office Table.

The Manchester City Council on Wednesday approved the action of the Parks Committee in agreeing to the proposal to remove and re-erect in Platt Fields the colonnade and wings (containing statuary) of the old town-hall in Kings-street. The committee propose to make a request to the Lloyds Banking Company, who have bought the old building and its site, to present to the corporation the stonework comprising the colonnade and wings, containing statuary. The Parks Committee took action on the understanding that the public should contribute about one-half—i.e., £450—of the estimated cost. So far £498 11s. 6d. has been received.

The well known Jacobean Globe Room in the Reindeer Inn at Barbary has been sold, as was mentioned in the House of Commons on Wednesday afternoon, for removal to America to a representative of a London and American firm. Mr. Percy Flick, acting for the vendors, declines to disclose the name of the purchaser. The Globe Room is panelled in old dark oak, and has a large mutilated window; but its chief beauty is the plastered ceiling. Some time ago a replica of this was made for the South Kensington Museum, and ceilings of very similar design are to be found at Compton Wynnyates. The owners of the inn are the Hook Norton Brewery Company, and it was stated, when first the sale was mentioned, that a purchaser had agreed to erect a facsimile of the room. The name is derived from a large globular chandelier which used to hang near the entrance, and it has been alleged that in this room a treaty was signed by Oliver Cromwell. The sale of the room was threatened two years ago, and the town council and some of the national societies took up the matter. Nothing, however, was done, so the building was for some time illustrated the 17th-century inclination for the room, and also the fireplaces, both from measured drawings by Mr. George Hanson, F.R.I.B.A., in our issues of January 24 and February 14, 1908. A small sketch by P. Hubert Key, of the exterior of the Reindeer Inn, showing the millioned window of this room, was published in our number for December 13, 1906, and a drawing of the entire courtyard of the inn, by William A. Pite, F.R.I.B.A., was given in the BUILDING NEWS for August 7, 1885.

It was reported to the London County Council on Tuesday that Mr. R. Elliott Cooper, M.I.C.E., who was appointed by the Board of Trade to act as referee in connection with the purchase by the Council of the portion in London of the undertaking authorised by the London United Tramways Acts, 1873-1908, has now issued his award. The Council, in June, 1910, sanctioned the expenditure, not exceeding £1,765, for the purpose of completing, revising, and re-drawing, on 5ft. scale Ordnance sheets, the ownership section of the ground plan of London. In April last year it was found more convenient, while the work of revising and re-drawing was progressing, to combine therewith the work of keeping up to date, to date, the work of keeping up to date was then authorised, at an estimated cost of £500 a year; but it was not possible to frame any reliable estimate of the cost of the revision and re-drawing until experience had been obtained as to the extent of the area which it was possible to deal with, having regard to the reduction of the number of the sheets engaged on the work which had recently been effected—viz., from sixteen to nine persons. On Tuesday last an estimate was submitted to the Council as to the cost of completing the revision and re-drawing of the plan. The valuer estimates, on the basis of the progress made with the work during the past year, that the work will take a further year, from April 1, 1912, to complete, and that the cost thereof will amount to £2,400, of which £450 will be expended during 1912-13, £480 during each of the years 1913-14 and 1914-15, £510 during 1915-16, and £480 during 1916-17. The Committee reported that it is desirable that the work shall be proceeded

with rapidly, on account of the worn condition of the original Ordnance sheets, which have been in constant use for the last seventeen years, with the result that some of the information is becoming obliterated. They were of opinion that the work should be pressed forward to completion. In addition to the revision and re-drawing, a small area of the plan still remains to be re-revised, at an estimated cost of £300. The total expenditure in completing and revising the ownership section of the plan, apart from the work of keeping up to date, will accordingly be £2,700, spread over the next five years as follows: 1912-13, £450; 1913-14, £580; 1914-15, £580; 1915-16, £510; and 1916-17, £480. The Committee recommended that a site on the surplus land near Vauxhall Cross, left from Wandsworth road improvement, and having an area of 6,450 square feet, and valued at £3,225, be appropriated for the erection thereon of a new tramways electrical substation. The tender of Messrs. Palman and Fotheringham, Ltd., of Islington, was accepted by the Council a fortnight ago at £6,743, for the erection of the station.

The Improvements Committee of the Council reported the result of a conference of local authorities interested in the question of the proposed extension of the Metropolitan approach road to London, held at the offices of the Road Board on February 14. On that occasion Sir George Gibb, the chairman of the Road Board, explained the proposals of the Board as regards the nature and objects of the suggested new thoroughfare, which it is proposed should be formed to the north of Brentford, and the south of the new Bridge Station, Chiswick Park road, Kings-road, Hammersmith, and Hammersmith-road, and connecting up with the western end of West Cromwell-road. The road, he said, was proposed to be constructed with a width of 80ft., and its total estimated cost from Hounslow to Cromwell-road, was £1,750,000, of which amount about £1,000,000 represented the cost of the section of the road which would be in London. The suggestion of the Road Board was that London should contribute a sum of £875,000 towards the total expenditure. It was intended to avoid High-street, Brentford, and King-street, Hammersmith. As regarded High-street, Brentford, the estimated cost of widening was £347,000. It will be necessary for the several authorities to consider the matter in detail, but the Road Board desires that a decision shall be come to as soon as possible. After considerable discussion, it was finally understood that the Road Board would arrange for a further conference between a small number of representatives of the authorities affected, to examine the scheme in detail. In the meantime the Improvements Committee ask authority to confer with representatives of the Middlesex County Council and the other local authorities concerned.

Mr. G. A. T. Middleton is arranging two pleasant tours for the spring and summer. The Easter tour is four days (Rouen only) for four and a half guineas, or for eight days (Rouen and Caudebec) for seven guineas. The party will leave London at 9.50 p.m. on Thursday, April 5, and proceed direct to Rouen, staying there till the morning of Easter Tuesday, when train will be taken to Caudebec, London being again reached early on Saturday, April 13. The total cost, second-class travel and good hotels, will be seven guineas, exclusive of meals while travelling, wine, etc., and portages, where necessary. The party will be under the direction of Mr. G. A. T. Middleton, M.I.C.E., of 23, Craven-street, Strand, London, W.C., to whom remittances must be sent by all who intend to participate by Monday, March 18. The summer tour is for four weeks (Greece only) for forty-two guineas, or seven weeks (Greece and Turkey) for sixty guineas. The party will leave London at 9.50 p.m. on Thursday, June 27, and proceed direct to Paris to Marseilles, whence boat will be taken to Patras, arriving there on Wednesday, July 3. A tour of Greece will be made during the following fortnight, the places to be visited including Corinth, Mycenae, Epidaurus, Athens, and Eleusis. The boat will be rejoined on July 17, and Constantinople

reached on July 22. Five days was spent there, and an excursion of five days' duration will be made to Broussa, in Asia Minor (the ancient capital of the Ottoman Empire), and to Nicæa. The return journey will be by boat, leaving Constantinople on August 3, and reaching Marseilles on August 12, which would enable Leon to be reached early on Wednesday, August 14. The party will be under the direction of Mr. G. A. T. Middleton, A.R.I.B.A., of 19, Craven-street, Strand, London, W.C., to whom remittances must be sent by all who intend to participate by Saturday, May 25.

By the use of mica, concrete work has been made in Chicago that bears a strong resemblance to granite. For surfacing concrete it has proved very effective. About five pounds of mica is sufficient to cover one square foot. The electric-light columns in Lincoln Park, Chicago, were treated in this way. Crushed red granite was used with the mica, so that the finished surface had the appearance of polished granite. The granite and mica surfacing material were applied to the inner surface of the square iron trough in which the columns were cast, and after their removal the posts were scrubbed with mica, which removed the sand from the surface of the mica particles, when the surface showed a close resemblance to granite.

Herr Magens, a German engineer, has investigated the question of the influence of transportation on concrete, and has made comparative tests between concrete cubes made at the plant and then conveyed longer distances, to the building, and between concrete cubes made directly at the building and then used there. In comparing test cubes, he allowed them to set 28-60 days and then tested them, finding that the concrete conveyed long distances showed in nearly all cases a considerable increase in compressive strength, varying between 56lb. to 198lb. to the inch. A number of laboratories that were interested in this question made similar experiments and found the same results, the variations being from 7 to 33 per cent. in favour of the transported concrete. In general, transportation of concrete has no bad effect on the same, and in many cases has even a good effect. The results also point to the conclusion that inert material with sharp and jagged edges, such as broken stone, gives better results than smooth, round material like pebbles and gravel. It is claimed that the shaking and the vibrations to which the concrete is subjected in conveying even adds to its density and closer structure. The building department at Ratzburg tested transported concrete for foundations, and found it to be 15 per cent. superior to the concrete made at the construction plant. This concrete has been transported a distance of 5,000ft. from the place of manufacture to the building where it was to be used.

The corporation of Accrington, which has applied to the Local Government Board for sanction to borrow £33,750 for electricity extensions, has decided to adopt gas-engines for driving the electric generators. It is intended to have a producer plant with ammonia recovery, at a first installation will be capable of developing 2,000 H.P., but arrangements will be made for the subsequent addition of four similar units if required. At the Local Government Board inquiry just held it was stated that the initial plant would include two gas-engines, two high-tension generators, two exciters, and two water-cooling machines, the gas producer plant to cost £8,000, and the gas-engines and generators at £13,500. It is expected that there will be a saving, against steam, of £1,100 per annum for a 60 per cent. load factor on 2,000 H.P., allowing 12 per cent. for interest, sinking fund, and repairs, and taking coal at 10s. per ton, whilst a further sum of £1,250 will be obtained from the recovery of by-products. The experience of the Accrington Corporation, if successful, may be of importance to the gas-engine industry.

Circular No. 192, issued by the Forest Service Division of the United States De-

partment of Agriculture, treats of the prevention of sap stains in lumber. Freshly cut sap-lumber, when piled in the open air to season will frequently become discoloured in a few days. The discolouration, which is more than a surface stain, and penetrates some distance into the wood, serves to depreciate the value of the lumber. Experiments by the U.S. Department of Agriculture, extending over a number of years, have been successful in providing a means of arresting this staining, and thus saving the immense loss by deterioration. The method that has been found to best serve the purpose is to treat it by dipping the boards in a 5 to 10 per cent. solution of sodium bicarbonate, and stocking in open piles to permit the free circulation of air. Other solutions were found to be equally efficacious in preventing staining, but owing to the fact that they discoloured the wood were discarded as not practical. The pamphlet goes into the subject in much detail, and can be had by addressing the Department of Agriculture, Washington, D.C.

Mr. W. G. Coles, F.S.I., has been appointed chief surveyor in the Land Division under the Small Landholders (Scotland) Act.

A colossal memorial statue in bronze of the late Mr. Hornby is to be erected in Blackburn, the sculptor being Mr. Albert Bruce-Joy.

Messrs. J. and J. Smith have been appointed architects to the Clones No. 2 Rural District Council for the erection of labourers' cottages.

Mr. Thomas Thomson, sub-sanitary inspector, Stirling, has been appointed borough surveyor, and sanitary inspector to the Dumfries Town Council.

About £5,000 damage was caused by a fire which broke out on Tuesday at extensive timber stores in Grenade street, Limehouse East, belonging to Messrs. Clark, Williams, and Co., ship joiners.

New and important discoveries are reported from Pompeii, including a species of drinking-burn containing many amphora, a dining-room with a fine fresco, and numerous engineering inscriptions.

Foundation-stones of a new Wesleyan Sunday-school were laid at Newbiggin on Saturday. The building is being constructed by Messrs. Walker, of Bedlington, from the designs of Mr. Bell, architect, of Newcastle, and is to cost £490.

Mr. J. W. Lorden, of West Hill, Putney, and of the firm of W. H. Lorden and Son, builders, Trinity-road, Upper Tooting, was selected on Wednesday as prospective Unionist candidate for the representation in Parliament of North St. Pancras.

The death occurred at Truro on Thursday night in last week of Mr. William Clemens, of Truro, formerly surveyor of the city. Mr. Clemens was appointed borough and sanitary inspector of Truro over half a century ago, and when he retired, some ten or twelve years since, he was appointed consulting surveyor to the corporation.

At the last meeting of the Lancashire Asylum Board, it was reported that Messrs. R. Neill and Sons, contractors, had abandoned the Whalley Asylum contract, and had filed their petition in bankruptcy. The committee were taking steps to re-let the contract. Afterwards, the committee decided to let the contract to the Whalley Asylum, the contract was let to Messrs. Parkinson, Limited, contractors, of Blackpool, at £339,500.

Mr. Frederick Rolley, of St. Helier-road, Blackpool, died on Wednesday week aged sixty-eight years. A native of Wakefield, Mr. Rolley was for many years an assistant surveyor to the Halifax Corporation, and surveyor to the Todmorden Local Board. In 1883 he became surveyor to the Whitworth Local Board, and held that post for twenty years. After his retirement he resided at Blackpool.

At Tuesday's meeting of the city council of Birmingham it was decided that the carriage-way of Great Charles-street, between Margaret-street and Newhall-street, be paved with pneumatic oak blocks, at an estimated cost of £1,020. It was also agreed to continue the granite-set paving in Landor-street and Arden-road up to Bordesley Green-road, at an estimated cost of £7,533; to carry out the widening and improvement of the Sandy-bush at a cost of £3,635; and to carry out works for the widening and improvement of Alum Rock-road and Treaford-lane, at an estimated cost of £6,386 and of £2,974 respectively.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Birmingham Architectural Association, 8 p.m. South-Sea Architects of the Stuart Period," by Mervyn Macartney, F.S.A.
Leicester and Leicestershire Society of Architects, "Metalwork," by Walter Gilbert, of the Bromsgrove Guild, 8 p.m.

MONDAY.—Architectural Association, "American Architecture," by C. A. Danbney, F.S.I., A.R.I.B.A., 7.30 p.m.
Surveyors' Institution, "Adjourned Discussion on 'The Single Tax Movement,'" 8 p.m.
Royal Society of Arts, "The Loom and Spindle," by Luther Hooper, Cantor Lecture No. 3, 8 p.m.
Institute of Civil Engineers, "The Modern Home," by Percival M. Fraser, A.R.I.B.A., Caxton House, Westminster, 8 p.m.

TUESDAY.—Institution of Civil Engineers, Discussion on "Roller and Ball Bearings," and "The Testing of Anti-Friction Bearing Metals," Papers on "The Main Drainage of Glasgow," by Alexander Bethel McDonald, and "The Construction of the Glasgow Main-Drainage Works," by William Cecil Easton, B.Sc., I.C.E., and "Glasgow Main Drainage," by James Buchanan, I.C.E., on the "Chemical Equipment of the Western Works and of the Kinning Park Pumping Station," by James Merton, M.I.C.E.

Nottingham Architectural Society, Exhibition and Criticism of Designs for a Seaside Bungalow, 8 p.m.

WEDNESDAY.—Royal Society of Arts, "Greek Sculpture," by Prof. Ernest A. Gardner, M.A., 8 p.m.

THURSDAY.—Royal Society of Arts, "The Indian Census of 1911," by E. A. Gait, I.C.S., C.I.E., 4.30 p.m.
Manchester Society of Architects, "Buildings for Music," by H. H. Statham, F.R.I.B.A., 8 p.m.

FRIDAY (MARCH 15).—Institution of Civil Engineers, Students' Meeting, "The Real Value of Fuel," by A. E. Gladwin, Stud. Inst. C.E., 8 p.m.
Glasgow Architectural, Craftsmen and Valuing of Mason and Brick Work," by A. H. Purdie, 8 p.m.

SATURDAY (MARCH 16).—Architectural Association, Visit to King's College Hospital, Denmark Hill, (W. A. Pite, F.R.I.B.A., Architect)

Trade News.

WAGES MOVEMENTS.

DALBEATTIE.—A new development in connection with the setmakers' dispute in Dalbeattie was unfolded on Saturday. Acting on their decision of Thursday night, the men returned to work on Friday, after intimating to Messrs. D. H. and J. Newall and the masters of Barr Wood and Old Lands Quarries that they would not make 4in. by 6in. sets unless the increase of 3d. per ton was given. As a result, the quarry was temporarily closed down that night, and on Saturday not only the setmakers, but the drillers and others employed in the procuring of the granite were idle. Neither side seems willing to yield.

NANTLE SLATE QUARRIES CLOSED.—In consequence of the shortage of coal several Nantle slate quarries have already been obliged to close in so far as the employment of actual slate-getters and set-makers is concerned. The quarries affected are South Dorothea, Olgwyn, Alexandra, and Moeltryfan. Some 600 or 700 men are thrown out of work. At Moeltryfan the labourers will continue at work clearing a great fall which occurred last week.

TROUBLE THREATENING AMONG SCOTTISH QUARRYMEN.—A grave outlook has arisen in the quarrying industry in the East and West of Scotland. The Setmakers' Union made an application on behalf of the men for an advance of 1s. per ton on all classes of cubes, 6d. per ton on oblong slates, 3d. per foot on kerb and channel, and various advances on other special stones. It was stated that some of the size men in the industry have so much to understand that it is impossible to make a living wage under the present working conditions. The East and West of Scotland Masters' Association have intimated that after considering the value of the price for the stone they have unanimously resolved, without yet proposing a reduction, that any application from the Union for any increase cannot be entertained at the present time. The masters have also intimated that they see no necessity for a conference on the subject.

LATEST PRICES.

IRON

[illegible]

OTHER METALS

| | | | | | |
|--|---------------|-----|----|-----------|----------|
| Spelter, Silesian | Per ton £26 5 | 0 | 0 | to £16 17 | 0 |
| Lead Water Pipe, Town | | 23 | 6 | 2 | |
| Lead Water Pipe, Country | | 20 | 17 | | |
| Lead Ball Pipe, Town | | 22 | 6 | | |
| Lead Pipe, Country | | 21 | 17 | | |
| Lead Pipe, Tinned inside, Town | | 22 | 6 | | |
| Lead Pipe, Tinned inside, Country | | 22 | 17 | | |
| Lead Pipe, Tinned inside and outside | Town | 24 | 12 | | |
| Composition Gas-Pipe, Town | | 23 | 6 | | |
| Composition Gas-Pipe, Country | | 25 | 17 | | |
| Lead Soil-pipe (up to 4½ in. bore) | Town | 24 | 12 | | |
| Lead Soil-pipe (up to 4½ in. bore) | Country | 23 | 17 | | |
| [Over 4½ in. £1 per ton extra.] | | | | | |
| Copper Sheet, in 24 in. lengths | | 24 | 15 | 0 | |
| Lead Shot, shot, shattering & rods | | 81 | 0 | 0 | 83 10 0 |
| Copper, British Lake and Ingot | | 88 | 5 | 0 | 85 16 0 |
| Copper, Cast | | 88 | 5 | 0 | 85 16 0 |
| Tin, English Ingots | | 106 | 0 | 0 | 106 19 0 |
| Tin, Do, Australian | | 102 | 0 | 0 | 102 10 0 |
| Tin, Do, Batavia | | 102 | 0 | 0 | 107 11 0 |
| Pig Lead, in 1wt. pigs | | 17 | 2 | 0 | |
| Sheet Lead, Town | | 19 | 12 | | |
| Sheet Lead, Country | | 18 | 12 | | |
| Genuine White Lead | | 20 | 13 | | |
| Refined Red Lead | | 20 | 0 | | |
| Sheet Zinc | | 20 | 0 | | |
| Old Lead, against account | | 14 | 15 | 0 | |
| Tin | per cwt. | 11 | 10 | 0 | |
| Cash Price (per cwt. of 100 lbs. net dry brand) | | 10 | 6 | | |

TIMBER

| CONSTRUCTION. | | | | |
|----------------------------------|-------------|-----------|----------|----------------|
| Per St. Petersburg | Standard | 100—12ft. | by 14in. | by 14in. |
| Yellow Pine Decks, | 1st quality | £34 | 0 | 0 to £26 0 0 |
| " " " " | 2nd | 24 | 0 | 0 to 22 0 0 |
| " " " " | 3rd | 18 | 0 | 0 to 16 0 0 |
| Spruce Decks: St. Johns | ..... | 8 | 0 | 0 to 11 0 0 |
| " " " " | ..... | 7 | 0 | 0 to 8 10 0 |
| " " " " | ..... | 6 | 0 | 0 to 8 10 0 |
| Boards: Best | ..... | 20 | 0 | 0 to 18 0 0 |
| Red Decks: Archangel 1st quality | ..... | 20 | 0 | 0 to 21 0 0 |
| " " " " | 2nd | 18 | 0 | 0 to 17 0 0 |
| " " " " | 3rd | 11 | 0 | 0 to 13 0 0 |
| " " St. Petersburg— | 1st quality | 16 | 0 | 0 to 17 0 0 |
| " " " " | 2nd | 13 | 0 | 0 to 14 0 0 |
| " " " " Wyborg & Uleaborg | ..... | 10 | 0 | 0 to 12 0 0 |
| " " " " Archangel, | ..... | 10 | 0 | 0 to 11 0 0 |
| " " " " and Stockholm | ..... | 10 | 0 | 0 to 17 0 0 |
| White Decks: Grown | ..... | 10 | 0 | 0 to 13 0 0 |
| " " " " | ..... | 9 | 0 | 0 to 10 0 0 |
| Flooring: White and Plained | ..... | 10 | 0 | 0 to 12 0 0 |
| 1st and 2nd quality mixed | ..... | 9 | 0 | 0 to 9 6 0 |
| 1st, 2nd, and 3rd quality mixed | ..... | 8 | 0 | 0 to 9 0 0 |
| Red Plained, 1st quality | ..... | 11 | 0 | 0 to 11 0 0 |
| Pitch Pine: Prime Decks and | ..... | 17 | 0 | 0 to 18 0 0 |
| Boards | ..... | 16 | 0 | 0 to 17 0 0 |
| Gunpowder Vitr | ..... | 10 | 0 | 0 to 12 0 0 |
| For foot upper, as lin. | | | | |
| Yellow Pine Logs (round beam) | ..... | 0 | 1 | 0 to 0 13 0 |
| Fifth Pine Logs | ..... | 0 | 1 | 0 to 0 13 0 |
| " " " " Quebec Logs | ..... | 0 | 2 | 0 to 0 2 6 |
| Oak: Astoria and St. James | ..... | 0 | 1 | 0 to 0 13 0 |
| Mahogany: Gaboon | ..... | 0 | 6 | 11 0 to 0 13 0 |

FURNITURE AND HARDWOODS.

| | | | | | |
|-------------|-----------------------|--------------------|------|------------------|---------|
| Oak: | Burned | per load (600 ft.) | \$20 | 0 00 | \$21 10 |
| " | Java | " | " | 0 00 | 18 00 |
| Oak Planks: | U.S.A., imported.. | | | Per cubic foot. | |
| " | Boards | " | " | 1 80 | 0 20 |
| " | " | " | " | " | " |
| " | Midway | " | " | 0 34 | 0 36 |
| Sesquia: | (California Redwood) | " | " | 0 30 | 0 30 |
| Sitka: | Quebec logs | " | " | 0 18 | 0 20 |
| " | " | " | " | 0 18 | 0 20 |
| Ck: | Anatolian Walnut | " | " | 0 70 | 0 68 |
| Walnut: | Prime boards & planks | " | " | 0 60 | 0 60 |
| " | " | " | " | 0 60 | 0 60 |
| Greenheart: | Haven logs | " | " | 0 36 | 0 36 |
| Cedar: | Clear box | " | " | 0 36 | 0 36 |
| " | St. West | " | " | 0 36 | 0 36 |
| Prime | Imp. sawn boards, | " | " | 0 28 | 0 28 |
| Orham: | Imp. sawn boards, | " | " | " | " |
| " | prime | " | " | 0 10 | 0 10 |
| Mahogany: | S. S. Domingo, Co. | " | " | Per foot of lin. | |
| " | " | " | " | " | " |
| " | and Honduras | " | " | 0 05 | 0 05 |
| " | African, Assine, &c. | " | " | 0 44 | 0 06 |
| " | Lagos and Benin | " | " | 0 44 | 0 06 |
| " | " | " | " | " | " |
| " | Seckondi and Cape | " | " | 0 29 | 0 31 |
| " | Lopez | " | " | 0 28 | 0 34 |
| " | Gaboon | " | " | 0 00 | 0 00 |
| Satinwood: | West Indian | " | " | 0 10 | 0 20 |
| " | " | " | " | 0 10 | 0 20 |
| Lignum Vit | " | " | " | 7 00 | 12 00 |
| " | Per ton | " | " | " | " |

STONE •

| | | | | |
|---|---------------------|----|---|-----|
| Dead Manfield blocks | per foot cube | 20 | 2 | 3 |
| Darley Dale, ditto | ..... | 11 | 2 | 3 |
| Red Corsehill, ditto | ..... | 11 | 2 | 2 |
| Reddish, ditto | ..... | 11 | 2 | 2 |
| Ancester ditto Red Freestone, ditto | ..... | 11 | 2 | 2 |
| Greenfield, ditto | ..... | 11 | 1 | 1 |
| Chilmark, ditto (in track at Nine Elms) | ..... | 11 | 0 | 10 |
| Chilmark, ditto (in track at Nine Elms) | ..... | 11 | 0 | 10 |
| Ditto ditto 6in. sawn both sides, landing, random sizes | per foot sq. | 8 | 1 | 8 |
| Ditto ditto 6in. sawn both sides, random sizes | ..... | 11 | 0 | 116 |
| random sizes | ..... | 0 | 1 | 3 |
| * All F.O.R. London. | | | | |
| Each Stone, delivered on rail at quarry stations | per foot cube | 20 | 2 | 3 |
| Delivered on road wagons, Paddington Depot | ..... | 11 | 0 | 184 |
| Delivered on road wagons, St. Pancras Depot | ..... | 11 | 0 | 184 |
| Beer Stone, delivered on rail at St. Pancras Station | ..... | 11 | 0 | 1 |
| Station | ..... | 11 | 0 | 1 |
| Stone, del. del. St. Pancras at Nine Elms Station | ..... | 11 | 0 | 1 |
| Portland Stone, in random blocks of 20ft. average size | ..... | 11 | 0 | 1 |
| Delivered to railway depot | ..... | 11 | 0 | 1 |
| White Portland | ..... | 11 | 0 | 1 |
| White Portland | ..... | 11 | 0 | 1 |

SLATES.

| | In. | In. | E. | d. | |
|-----------------|-----|-----|----|----|----------------------------|
| Slne Portmadoc | 20 | 10 | 12 | 13 | per 1000 of 1200 str. etc. |
| Slne | 16 | 8 | 6 | 12 | 0 |
| Slne Bangor | 20 | 10 | 13 | 2 | 0 |
| Slne | 20 | 12 | 13 | 17 | 6 |
| First quality | 20 | 10 | 13 | 0 | 0 |
| Slne | 20 | 12 | 13 | 0 | 0 |
| Slne | 16 | 8 | 7 | 5 | 0 |
| Eureka unfading | E. | d. | | | |
| green | 20 | 10 | 15 | 17 | 0 |
| Slne | 20 | 12 | 18 | 7 | 6 |
| Slne | 18 | 10 | 13 | 5 | 0 |
| Slne | 16 | 8 | 10 | 0 | 0 |
| Permanent green | 20 | 10 | 11 | 13 | 6 |
| Slne | 18 | 10 | 9 | 12 | 8 |
| Slne | 18 | 8 | 8 | 12 | 6 |

BRICKS.

[illegible]

GLAZED BRICKS.

| HARD GLAZES. (PER 1,000.) | | | | | |
|--|--------------------|-------------------|--------------------|----------|--|
| White, Ivory, and Salt Glazed. Best. Seconds. | Buff and Cream. | Other Colours. | Second Colours. | | |
| Stretchers— | | | | | |
| £10 17 6 | £9 7 6 | £12 7 6 | £ 6 7 6 | £10 17 6 | |
| Headings— | | | | | |
| 10 7 6 | 8 17 6 | 11 17 6 | 18 17 6 | 10 7 6 | |
| Quoins, Bullnose, and 13 17 6 | 12 17 6 | 16 7 6 | 19 17 6 | 14 7 6 | |
| Double Headers— | | | | | |
| 16 7 6 | 14 17 6 | 18 7 6 | 32 17 6 | 16 7 6 | |
| One side and two ends, square— | | | | | |
| 17 7 6 | 15 17 6 | 20 7 6 | 34 17 6 | 17 7 6 | |
| Two ends and one side, square— | | | | | |
| 18 7 6 | 16 17 6 | 21 7 6 | 35 17 6 | 18 7 6 | |
| plays and Squints— | | | | | |
| 19 7 6 | 17 17 6 | 22 7 6 | 36 17 6 | 19 7 6 | |
| Fifth and Half Bricks, Stretchers and Headings— | | | | | |
| 6d. each | 6d. each | 6d. each | 6d. each | 6d. each | |
| Double Bullnose, Round Ends, Bullnose Stops, and Bull- | | | | | |
| 6d. each | 4d. each | 6d. each | 6d. each | 5d. each | |
| ounded Ends— | | | | | |
| 4d. each | 3d. each | 5d. each | 6d. each | 4d. each | |

leaders—

[illegible]

TILES.

| | d. | Delivered |
|-------------------------------|-----|-------------------------|
| up red roofing tiles | 42 | 0 per 1000 at fly, etc. |
| up and Valley tiles | 50 | 0 per doz. |
| oseley tiles | 50 | 0 per 1000 |
| manmade tiles | 52 | 0 per doz. |
| up and Valley tiles | 52 | 0 per doz. |
| about red, brown, or brindled | 60 | 0 per 1000 |
| day tiles | 67 | 0 per doz. |
| Ornamental do. | 67 | 0 per 1000 |
| tile tips | 80 | 0 per doz. |
| Valley tiles | 85 | 0 per doz. |
| ected "Perfects" roofing | 95 | 0 per doz. |
| tiles plain tiles (Peake's) | 95 | 0 per 1000 |
| Ornamental do. | 100 | 0 per doz. |
| tiles | 103 | per doz. |
| tile tips | 103 | per doz. |
| rosemary" brand plain | 104 | 0 per doz. |
| tiles | 104 | 0 per 1000 |
| Ornamental tiles | 104 | 0 per doz. |
| Valley tiles | 104 | 0 per doz. |
| tile tips | 104 | 0 per doz. |
| or brindled tiles | 105 | 0 per 1000 |
| Ornamental sand-faced | 105 | 0 per doz. |
| tile tips | 105 | 0 per doz. |
| Valley tiles | 105 | 0 per doz. |
| Ornamental tiles | 105 | 0 per doz. |
| sand-faced | 106 | 0 per 1000 |
| pressed | 106 | 0 per doz. |
| Ornamental tiles | 106 | 0 per doz. |
| tile tips | 106 | 0 per doz. |

OILS.

GLASS (IN CRATES).

| | | | | |
|-----------------------------|-------|----------|----------|----------|
| ish Sheet Glass: | 16oz. | 31oz. | 26oz. | 32oz. |
| urths | 12d. | ... 21d. | ... 31d. | ... 41s. |
| urle | 24d. | ... 31d. | ... 41s. | ... 6d. |
| ated Sheet | 23d. | ... 31d. | ... 8d. | ... 61d. |
| ley's English Rolled Plate: | 11s. | 7 1/2s. | 11s. | |
| | 2d. | ... 24d. | ... 2d. | |

red Rolled, and Repousseine: White, Tint d.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.O.

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Organ in Billiard Room at Harrow. Mr. Arnold Mitchell, F.R.I.B.A., Architect.

House at Pangbourne: View from the Gardens. Mr. Arnold Mitchell, F.R.I.B.A., Architect.

BUILDING NEWS Designing Club: A Mountain Church in Wales. First and Third Selected Designs.

"THEY ALWAYS WIND UP WITH A ROW."

We don't say whereabouts the people lived whose character was described by one of their class, either in the last century or earlier ones, nor if they resided in Europe, in Asia, in Africa, or in America. We need not say that Australia was not their dwelling-place, because they were "a very peculiar people," perhaps "not always zealous for good works," and in any case specially zealous against bad ones, against which most, if not all, their wrath was chiefly directed. They had from early times a great deal of wrath in hand, and when we take up their story there was plenty of it left for future consumption, either in this world or in others. But they and their ways, their arts and all they did, sank them beneath most people's notice when their "great man" died, which he did not much after entering on middle age, and not long after his sincerest friend had left these stormy scenes in the hope of meeting with a realm of unbroken repose. They and their leader both meant to do good—nay, in their different ways, both did good; but what the outside world mainly said of them was the phrase which we have used to head this little memorial: "They always wind up with a row." There was no denying it, and had they all lived till now, so doubtless they would be ending still. Not that their leading spirit was cowardly by character. No one thought him so, or called him so, except when he had been desperately provoked, and by provocation particularly on what he would have drawn theologically grounds. As his life drew near its close, he seemed, as many men do, not to insist too strenuously on the little things which had seemed to him, as a beginner, very great ones. There seemed to be germs of evil everywhere, and his personal enemies were apparently stirring it up where it was hardest for him to let it go quite unnoticed.

There are many institutions, some worldly and some "other-worldly," which always "wind up with a row." But for the "other-worldly" ones the final row has to be a serious one—in another world. That, if it did come on as expected, has not yet been reported here below. But their first row here (as often happens with cantankerous people) was with an earthly architect. He had done some things, these people said, which he ought not to have done, and left undone some things which he ought to have done. Both the charges, though utterly denied, and his accusers, though they repeated them, never could prove them. They inquired why he had

put the windows in rather small panes of rather stout glass. He had not to answer for this sin, because two or three trustees kindly took his part and declared the glass was none too thick to resist a hockey-ball, and the panes none too small. Old Cantankerous said he would have insured all the glass against breakage, had he been the architect, by making it all of what used to be the central part of every sheet of glass. This was a question of cost, and the committee here was against him. Then they quarrelled amongst themselves as to whether the front door ought not to have been painted dark green instead of brown, and whether every chimney ought not to have been finished with an anti-smoking white terracotta pot. Here the committee were against the architect, for he was old-fashioned enough to prefer red ones (at half the price of white terracotta). Finally the committee acted up to its character and broke up in a row. Mr. Larks having, by means of a fragment of red chimney-pot, deposited Mr. Tonks's hat in a pool of mud, for which, the several parties agreed, the architect was to blame. So on this occasion also they "wound up with a row."

So after a few more or less stormy meetings, a clerk of works was appointed (apparently with a scheme in his head to act on), when a new architect, too, was proposed, and would have been appointed but that before the week was out he was under remand at the police-court for a matter in which the magistrate declined to allow bail. "We may see now," said Old Cantankerous, "what sort of professionals these architects are"; but, seeing the architect noting down his words, he ended in a tone which nobody could take down or swear to, and the first architect was reinstated for a while. Matters for the present then went on more smoothly. About this date the vital question of facing-bricks arose, and threatened to swallow up all others. Mr. Muggins—a committee-man—bought the bricks of a brickmaker near the Thames. They came up to London in one of Mr. Muggins's own barges, which, being in a leaky state from the first, sank before its voyage was half-over, and its cargo of bricks was immersed for two or three days in a mixture of salt water, sewage, and mud. The bricks were none the fatter for this unintentional experiment. Mr. Muggins was at that time too great a man to have his bricks returned upon him, though, after his ways had been a little exposed to daylight, people did not think them half so unimpeachable. However, the bricks were used for facing, with

all their defects, original and acquired; but after six or eight months their faces began to scale off. By this time death and worse things had thinned the ranks of the trustees a little, and one result of this thinning was to make them, if not less quarrelsome, yet a little more afraid of quarrelling. Of course, they blamed the architect, who, though honest, was not a "holy man," nor a "deacon," as all architects and builders should take care to be. The committee had twenty or thirty of the spoiled facing-bricks cut out and replaced by good ones; the rest remained, and some remain to this day. For more serious things than mud-soaked and salt-soaked bricks were by that time in question, and the great brick question had become a very small one.

A fortnight later the new clerk of works resigned. It then appeared that the salary promised him had been less than half of what he valued his own services at (which was three guineas weekly), and that the trustees had stipulated for half-yearly payments. He had dealt with the trustee class before, and as he did not feel sure how long his present specimens of this dignity would be free men, he lost little time in taking leave of them. More than one of them, in fact, was in their country's charge before six months were over; but not the very sharpest of them. These went abroad for the winter—perhaps to America, perhaps to Spain, or perhaps to places more difficult of access. Some of those who stayed here were in some cases believed to stay because they could not go for want of means. The architect remained. There were no charges against him worth notice, and if his father had not foolishly interfered with his education, or if it had been left free, he might have become a Churchman, which to this staunch Separatist would have been the Accursed Thing. He would have long before defied the cantankerous trustees, who wanted to ruin him. At last, however, he did defy them, and in writing, and got a sort of apology from the head man, and was employed at last to build the memorial hall to him after his death.

There are many committees and boards of trustees still left, who always "wind up with a row." What is the wisest course for a young architect to take, when he is in danger of falling into their hands? Some of them may be merely accidental groupings of ill-disposed people. Their members quarrel for quarrelling's sake. Perhaps some "old Cantankerous" was one of the early members, and he took care to have many like-minded associates. He, or they, will put your character to pieces,

for the rest to laugh at. Wait till he brings a definite charge against you before witnesses, and then have his words taken down, or take them down yourself. Two or three witnesses will be better than one, and the best of all if they are not friends of the architect's. The old Cantankerous will quiet down a little when he has to meet evidence of making false and improbable charges against a professional man. Get good witnesses, too, if you can, of his saying things to the workmen on the job to damage your character, for this is a serious thing, and Mr. C. is quite likely to have stumbled into it, out of mere "cussedness of character." And if he has, other trustees are very likely to have joined him there, and more or less to be at your mercy. Remember that an architect's first duty is to drive the dogs away from his own heels. Unless you can do that, you can never superintend a building properly. Every man on the works will note that Mr. C. has made you afraid. But it is you that ought, *in view* *ways*, to force Mr. C. to be in your service, and at your command; and unless you manage this when you come, you probably never will manage it at all. If you have received a foolish training (as many boys have who deserved a better one), you must get rid of it and of the damage it did you before you can expect to be thought worth your salt by anybody else. Perhaps before you could walk or talk, some kind friend (by his minister's advice) used to follow his child about the house with a cane to beat all the wickedness out of him before it had even a chance of getting in. Learn to detest this unnatural way of being senselessly brought up, and, if you can, keep clear of it and all that pertains to it, for ever after. People like this, even if they did you no worse harm, would incapacitate you from seeing more than one side of a question all your life long; but an architect, to be worth the name, must see all sides of it. To some people, their personal horizon is the boundary of all things; but let it not be so with you.

There are hard times coming; hardest of all, retributively, for those who have made them hard for others. There is somebody to reckon with. A million men on strike are not a million times harder to argue with than one man on strike; but they may be many times more obstinate, which God forbid! It is small comfort to remember that they are crippling other trades besides their own; crippling them, very likely, for years to come, perhaps crippling them so that they will never rise in vigour again; so that these trades will have to do what they can for their own members, and not for the general trade at all. Foundrymen, iron-mongers, and pattern-makers, must all be stopped, and nobody knows for how long. So must eating and drinking as far as they can be. Baked bread, and partially-cooked meat, all but the very rich must make up their minds to. If the strike succeeds for awhile, it cannot succeed for ever; coal is getting dearer, even without a strike. Perhaps coal will fail in the next two or three centuries; perhaps work and handicraft will reappear in our grandsons' lives. Perhaps, instead of coals, people will then grow and burn eucalyptus-trees in hot climates, and there will be a green earth again and not a black one.

PRIVATE LOCAL LEGISLATION.

Besides the large number of public statutes dealing with local government, public health, streets, buildings and endless other municipal matters there are also many private Acts which have been passed by Parliament upon the promotion, and at the expense, of numerous separate

localities. The public statutes, of course, apply to the whole kingdom; but these private Acts only affect the area controlled by the municipality in question. We thus get a body of private local legislation added to the general law of the land, and very often filling up gaps that were found in the public statutes, and giving new and needed legal powers to corporations and councils all over the country. This legislation is enacted, as it were, behind the scenes of Parliament. It all passes through a Special Committee of the House of Commons, and is, of course, controlled by the Legislature itself. But the very existence of these numerous private Acts is not very generally known, even to those who may come to be concerned in building or other business in the localities affected. Yet the new and extensive powers that are frequently given to provincial municipalities are of the utmost practical importance, and their working out in the chosen localities often affords an interesting experiment and an example that may well be followed later in a public statute. A very useful and interesting book* upon this local legislation has just been published. It is a most careful compilation from thirty-two of the provincial private Acts passed in England and Wales during the three years 1909 to 1911. It consists of the collection of no fewer than some 2,300 sections from these statutes, arranged and classified under subject headings for convenient and ready reference. Mr. F. N. Keen, the author, is heartily to be congratulated, not only upon his idea, which we believe to be novel and original, but also upon the patience and perseverance which he has shown in carrying out his laborious work so thoroughly. The result is a book of great practical value for all who have to deal with the drafting of these private Bills, which are increasingly common amongst our active municipalities. But it is also a work which, by its excellent arrangement, with headings, full Table of Contents, and good index, must prove useful and suggestive to all architects, surveyors, and builders who may have to set about their business in localities hitherto unknown.

It is well pointed out in the introduction that the clauses passed in these private Acts for local experiment are frequently found to be so useful and valuable that they afterwards come to be adopted in our general public statutes. These private Acts are certainly full of new and vital ideas, all showing the progressive tendencies of our modern municipalities. It is, of course, impossible, to note in these columns many of the multifarious subjects affected, and we can only take a few examples to illustrate our point and meaning. In Part I., which deals with streets, buildings, sewers, etc., under numerous sub-headings, we have many instances of the watchful care of those who promoted the various private Acts from which sections are quoted. Thus we find some local authorities have obtained in this way Parliamentary powers to define the future line of existing streets. For example, at Mountain Ash, the municipality, which seems to have taken a leading and an enlightened course in these matters, is able to order the alteration of the line of frontage even in old and well-established streets or roads. It can also enforce this new line by the compulsory purchase of any property that stands in its way, which can generally only be done

under the ordinary law, for the benefit of a public improvement. Other municipalities about the country have in their private Acts similar useful powers. But in most places they do not yet exist, and thus we sometimes see that an obstinate owner or leaseholder, by maintaining his position, can, and does, hinder the full completion of a road-widening upon new lines, to the annoyance of others, and even to the danger of those using the highway. It is certainly a question whether it would not be better to confer these full powers of compulsory purchase upon all municipalities, instead of leaving the matter in its present partial and experimental state. The general improvement of old country lanes, that have become busy roads, is to the public advantage, and it should not be hindered by the powerlessness of the local authorities to compel property-owners to sell at prices fixed after arbitration.

There is, nowadays, under our Town-Planning Act and other statutes, little difficulty in dealing with newly-created neighbourhoods; but in old localities questions of road widening and altered building lines raise practical problems, not always easy of solution. Our modern methods of rapid locomotion by trams, whether with or without rails, by motor-buses, and by motors generally, require more spacious and better-made roads. The needed changes are being gradually made all over the country, but in places they are sure to be obstructed from causes which are removable only by legislation. In the remedies given to many of our most progressive localities by the Private Acts they have obtained, we may find working models for general imitation, especially in their drastic powers for dealing with awkward property owners, and the survival of narrow lanes in portions of new and widened roads. We can also trace, in reference to buildings, some practical points well worth noting and extending. Thus, from amongst many such examples, we may mention that the municipality of St. Helens has, in its Private Act of last year, a clause compelling the owners of all dwelling-houses to be built in future, to provide "sufficient and suitable food storage accommodation" in the same, under penalties. Anyone who has seen the dark holes and airless cupboards called larders or pantries, which disgrace our domestic architecture in many places, and these not only in the poorer parts, will acknowledge that it is quite time this provision was made general and compulsory. Sanitation is by some confined to sewage and drains, and space; but the health of the people requires that, besides sufficient light and air, there should also be some means of storing their necessary food in a decent and wholesome manner. Another, and a smaller point, but one showing the watchfulness of some local authorities, may be taken from the Mountain Ash Private Act of 1909, since largely followed by other municipalities, which declares that every contractor or builder engaged upon the construction and alteration of any building shall provide satisfactory water-closets and urinals for the workers until the job is completed. So we might go on through a long list of similar and suggestive items of legislation which are to be found in these private statutes.

This volume indeed, dry, dull, and full of detail as it is, will come to many readers as a surprising revelation of the amazing activity and vigour of our municipalities, especially in some parts of the country. From the great growth that has taken place in this local legislation during the past three years, it would seem that they are now living with each other, and that many have followed the lead of those enterprising towns which seem to have started

* Local Legislation, 1909 to 1911. Compiled and arranged by F. N. KEEN, LL.B., Barrister-at-Law, of the Parliamentary Bar. With an Introduction by Sir CURTIS NORMAN, Bart., M.P., Water, Southwark and Co., Ltd., 30, Craven-street, W.C. Price 5s. net.

the more modern movement. All who are concerned with land and building must agree that this is for the good of the public as well as of those who are engaged in the professions and the trades affected. Order and cleanliness, and artistic symmetry in our public roads and private dwellings have been ardently longed for by social reformers and clear thinkers of all kinds. In this overcrowded country the health and happiness of the community require and demand these things. Reading over these well-arranged sections from our Local Acts of Parliament, we can see what has been, and is being, done in this direction, and we have a good guarantee for their future expansion. The legal clauses here set out in formal language, are, of course, only the expression of those original and fertile ideas that have come to some town clerk or local architect, engineer, or surveyor. But they have not been wasted. They have been brought into daily life and action through the modern municipalities acting in and by, the power of Parliament. This local legislation so carried out is a striking result of our national common sense, and of our ability to adapt old machinery to novel requirements. It has all been, and is still being, done quietly, in a business-like way, without any need for public discussion, or the waste of Parliamentary time. Some day, perhaps, most of the best things not already used, to be found in these numerous Private Acts, will be codified and centralised in one public statute for the benefit of the whole community. This local legislation may be taken as a seed-bed, or a nursery, of new and practical ideas affecting the daily life and health and progress of the people. When these ideas have been tried and tested by actual use and experiment, they can safely be applied to the general civic policy of the nation.

Undoubtedly our municipal enthusiasts have to be watched over and often restrained. But this is done very effectively by the special local legislation committee, which is now a strong body of fifteen members, many of whom have had practical experience of the work from sitting in previous sessions, and so preserve a continuity of policy in passing the Bills promoted. Of course, there are many schemes and suggestions that do not get through after the careful sifting and scrutiny they undergo. Equally of course, the powers of the general law are remembered, and are not allowed to be exceeded unless good cause is shown. But the men who have been responsible for the last three years' local legislation, so capably done in this useful book, have reason for pride in their output, and for public recognition of their fruitful labours. Upon a broad view of these private Acts, we see that they go further than does the body of our public statutes in favour of the community as compared with the individual. This is, therefore, to be taken as the trend of modern legislation. It is a peaceful progress, a silent revolution in our old ideas of the rights of property and of personal freedom. Municipalities are, in effect, making their own laws—through the most regular, constitutional channels, indeed, but making them, all the same. All this is done for the good of their collective community, and at the cost of the ratepayers. But it is worth doing and paying for, and is being well done. It may not be easy for some people to get enthusiastic about work of this kind. Yet if we look below the surface of words and forms, we can see the forces of order and good government operating actively and successfully in favour of the health, civilisation, comfort and convenience of the whole country. It is for architects, surveyors, engineers,

contractors, and builders generally to co-operate with these municipal powers in giving their best to the work they are called upon to do. This will be for the public good, as well as to their own personal profit and advantage. Now that a turn of the tide of our ill-fortune seems at hand, it may be hoped that we shall in this way soon witness brighter times for all who have to deal with land or building throughout the country.

THE R.I.B.A. PRIZES AND STUDENTSHIPS, 1913.

The subjects for the prizes and studentships in the gift of the Royal Institute of British Architects for the year 1913 are published in a pamphlet just issued.

The Essay Medal and Twenty-five Guinea open to British subjects under the age of forty years, will be awarded for the best essay on a subject of architectural interest which may be chosen by each competitor for himself. Competitors will be expected to make a useful contribution to knowledge by accurate research, so that the essays can be accepted as authoritative statements on the subjects dealt with. Candidates in the final examination competing for this prize may submit their essays as the thesis required under (F) of the revised syllabus. Hitherto it has been the practice to set a special subject every year for the essay prize; but the change indicated above has been decided upon on the recommendation of the Board of Architectural Education, who in a report to the Council expressed the opinion that able and permanently useful original work would probably be forthcoming if candidates were left to choose their own subjects.

The Measured Drawings Medal and Ten Guinea, open to British subjects under the age of thirty years, will be awarded for the best measured drawings made by the competitor of any important building—Classical or Mediaeval—in the United Kingdom or abroad. Candidates may apply to the Records Committee of the Royal Institute for guidance and direction as to subjects.

The Susan Medallion and £100, open to British subjects under the age of thirty years, will be awarded for the best design for a terminal railway station, with the main frontage facing an open square or place, and side frontages to wide roadways.

The Pugin Studentship (Silver Medal and £40), open to members of the profession (of all countries) between the ages of eighteen and twenty-five years, and intended for the study of the Mediaeval architecture of Great Britain and Ireland, will be awarded to the competitor who submits the best selection of drawings and testimonials.

The Godwin Bursary (supplemented by the Wimperley bequest, A Silver Medal and £55, intended for the study of modern architecture abroad, and open to British subjects without limitation as to age, will be awarded for the best selection of practical working drawings (his own work), or other evidence of special practical knowledge, and testimonials.

The Owen Jones Studentship (Certificate and £100), founded for the encouragement of the study of architecture, more particularly in respect to ornament and coloured decoration, and open to members of the profession under the age of thirty-five years. Candidates must submit testimonials, with drawings, some of which must be from existing buildings and from other examples, exhibiting their acquaintance with colour-decoration and with the leading subjects treated of in Owen Jones's "Grammar of Ornament."

The Tate Prize (Certificate and £30), open to British subjects under the age of thirty years, will be awarded for the best design, according to the methods of Palladio, Vignola, Wren, or Chambers, for the facade of a Royal palace in a city, and approached by a wide avenue.

The Henry Saxon Snell Prize (£60), open to any member of the architectural profession, who may associate with himself any member of the medical profession. The

prize, which was founded for the encouragement of the study of the improved design and construction of hospitals, convalescent homes, and asylums for the aged and infirm poor, will be awarded for the best design for a sanatorium for consumptives to provide accommodation for 150 men.

The Grissell Prize (Gold Medal and Ten Guinea), for the encouragement of the study of construction, and open to British subjects who have not been in practice more than ten years, will be awarded for the best design for a riding school constructed of steel, with the sides and roof partially glazed.

The Arthur Cates Prize (Forty Guinea), founded for the promotion of the study of architecture, more especially in relation to the application of geometry to vaulting, stability of edifices, and design, and open to British subjects who have passed the Institute Final Examination. Candidates must submit a selection of their testimonies of study for the Final Examination and drawings of subjects of Classical or Renaissance and of Mediaeval architecture.

The Ashtiel Prize (Books value £10), awarded to the student who distinguishes himself most highly in the Final Examination of the current year.

"TESTING OF MATERIALS" USED IN REINFORCED CONCRETE.

By MR. A. ALBAN H. SCOTT, M.R.S.A. Inst. (Member of Council S.S.)

(Continued from p. 359.)

(26) The ultimate resistance of any material is its strength at its weakest point, and the actual area of the concrete is the gross area minus the area of voids at any section; it is therefore necessary that the ascertained percentage of voids in the aggregate and sand should be entirely filled up with cement, with an additional allowance for completely surrounding each particle. The usual rough-and-ready means of determining the exact proportion of the cement to the sand and aggregate has resulted in many cases of disaster.

(27) The specific gravity of sand and cement should be taken in order to compare with the weight of the test specimens, as such weight is materially affected by the original weight of the aggregate and sand. There are at least two methods of ascertaining the amount of voids; one is by ascertaining the specific gravity of the material used, and, secondly, by allowing the aggregate and sand to absorb moisture, then to dry the surfaces without extracting moisture from the material, and then in the test tubes to add water until such time as the level of the aggregate and the water is at the same point.

(28) Water.—The water usually obtained from town supplies can be taken as of proper quality for use in concrete work; but in country districts water obtained from wells and reservoirs often contains foreign matter, such as peat and other vegetables, and it has been found that by using peaty water it retards the setting of the cement; in one case the concrete did not set for a period of three weeks, at which stage the concrete was still very soft, and was taken up.

(29) Steel.—In no part of the steel for reinforced concrete should welds be allowed. Welds can be made in various ways, but it is impossible to test each weld, and in these joints it is not an exaggeration to say that not one weld in 500 would be of equal strength to the rest of the bar, and it has been ascertained, with most disastrous results, that the strength at the joint of the weld goes so low as 30 per cent. of the bar adjoining. This is caused not so much by the lack of amalgamation of the material itself, but generally by the fact that large voids are left right in the centre of the joint.

(30) Surface defects in steel are often found in the ordinary commercial bars, being indicated by most minute cracks, generally starting in the shape of a "V." Although such defects are in themselves, perhaps,

RESULTS OF EXPERIMENTS TO ASCERTAIN THE RESISTANCE TO THRUSTING STRESS OF—

| Test No. | Description. | Weight. | Dimensions. | Base Area | Crushed. | | |
|--------------|-------------------------------------|---------|------------------|-----------|----------|-------------|-------------|
| | | | | | Stress | per sq. in. | per sq. ft. |
| Age 28 days. | | | | | | | |
| 2,975 | Not sprinkled | 1b. | inches. | sq. in. | lb. | lb. | tons |
| 2,976 | | 17.90 | 6.00 6.00 × 6.00 | 36.00 | 34,080 | 972 | 62.5 |
| 2,977 | | 18.17 | 6.02 6.00 × 6.00 | 36.00 | 36,080 | 1,002 | 64.4 |
| 2,978 | | 18.16 | 6.01 6.00 × 6.00 | 36.00 | 37,350 | 1,039 | 66.7 |
| 2,983 | Mixed fairly wet (as in practice) A | 18.60 | 6.10 6.00 × 6.00 | 36.00 | 42,750 | 1,187 | 76.3 |
| 2,984 | | 18.31 | 6.01 6.00 × 6.00 | 36.00 | 37,020 | 1,025 | 67.7 |
| 2,985 | | 18.43 | 6.01 6.00 × 6.00 | 36.00 | 41,700 | 1,153 | 74.1 |
| 2,986 | | 18.32 | 6.02 6.00 × 6.00 | 36.00 | 38,880 | 1,080 | 69.5 |
| 2,991 | Not sprinkled | 18.04 | 6.01 6.00 × 6.00 | 36.00 | 67,700 | 1,881 | 121.0 |
| 2,992 | | 18.02 | 6.01 6.00 × 6.00 | 36.00 | 64,200 | 1,786 | 115.9 |
| 2,993 | | 18.15 | 6.03 6.00 × 6.00 | 36.00 | 54,700 | 1,519 | 97.7 |
| 2,994 | | 18.34 | 6.06 6.00 × 6.00 | 36.00 | 60,700 | 1,686 | 108.4 |
| 2,999 | Mixed fairly dry (not rammed) B | 18.22 | 6.05 6.00 × 6.00 | 36.00 | 57,300 | 1,592 | 102.4 |
| 3,000 | | 18.26 | 6.01 6.00 × 6.00 | 36.00 | 64,600 | 1,795 | 115.4 |
| 3,001 | | 18.10 | 6.00 6.00 × 6.00 | 36.00 | 38,880 | 1,083 | 70.4 |
| 3,002 | | 18.17 | 6.02 6.00 × 6.00 | 36.00 | 59,800 | 1,663 | 108.5 |
| 3,121 | Not sprinkled | 18.36 | 6.01 6.00 × 6.00 | 36.00 | 68,000 | 1,889 | 121.5 |
| 3,122 | | 18.28 | 6.04 6.00 × 6.00 | 36.00 | 75,000 | 2,083 | 139.8 |
| 3,123 | | 18.28 | 6.03 6.00 × 6.00 | 36.00 | 73,630 | 2,015 | 131.5 |
| 3,124 | | 18.37 | 6.03 6.00 × 6.00 | 36.00 | 74,010 | 2,056 | 132.2 |
| 3,129 | Mixed fairly dry (rammed) C | 18.50 | 6.01 6.00 × 6.00 | 36.00 | 71,360 | 1,985 | 127.6 |
| 3,130 | | 18.60 | 6.03 6.00 × 6.00 | 36.00 | 74,270 | 2,063 | 132.7 |
| 3,131 | | 18.36 | 6.04 6.00 × 6.00 | 36.00 | 74,800 | 2,040 | 133.8 |
| 3,132 | | 18.43 | 6.02 6.00 × 6.00 | 36.00 | 72,600 | 2,002 | 128.7 |
| 3,137 | Not sprinkled | 18.13 | 6.03 6.00 × 6.00 | 36.00 | 80,280 | 2,238 | 143.9 |
| 3,138 | | 18.20 | 6.02 6.00 × 6.00 | 36.00 | 83,400 | 2,308 | 148.4 |
| 3,139 | | 17.90 | 6.00 6.00 × 6.00 | 36.00 | 83,280 | 2,313 | 148.0 |
| 3,140 | | 18.03 | 6.01 6.00 × 6.00 | 36.00 | 73,470 | 2,041 | 131.2 |
| 3,141 | Mixed very dry (rammed) D | 17.72 | 6.02 6.00 × 6.00 | 36.00 | 63,250 | 1,757 | 113.0 |
| 3,142 | | 18.26 | 6.00 6.00 × 6.00 | 36.00 | 83,400 | 2,318 | 148.4 |
| 3,143 | | 18.10 | 6.00 6.00 × 6.00 | 36.00 | 85,020 | 2,362 | 150.9 |
| 3,144 | | 17.72 | 6.00 6.00 × 6.00 | 36.00 | 67,200 | 1,875 | 120.6 |

Proportions: 4c.ft. Thames ballast (passing $\frac{1}{2}$ in. and retained on $\frac{1}{4}$ in. mesh), 2c.ft. sand.
For tensile strength, &c., of cement used for above, see page 367, Nov. 9, 1910. Water added to above quantities in Groups A, B, C, D.

SIXTY-FOUR CONCRETE CUBES, MADE UNDER VARIOUS CONDITIONS AT THESE WORKS.

| Test No. | Description. | Weight. | Dimensions. | Base Area | Crushed. | | | Incr. over 28d. |
|---------------|---------------|---------|------------------|-----------|----------|-------------|-------------|-----------------|
| | | | | | Stress | Per sq. in. | Per sq. ft. | |
| Age 110 days. | | | | | | | | |
| 2,979 | Not sprinkled | 17.76 | 6.00 6.00 × 6.00 | 36.00 | 64,920 | 1,798 | 113.6 | p.e. |
| 2,980 | | 17.77 | 6.01 6.00 × 6.00 | 36.00 | 65,020 | 1,776 | 114.2 | 114.9 |
| 2,981 | | 17.95 | 6.00 6.00 × 6.00 | 36.00 | 64,230 | 1,783 | 113.7 | |
| 2,982 | | 17.67 | 6.00 6.00 × 6.00 | 36.00 | 38,100 | 1,056 | 70.3 | |
| 2,983 | Mixed fairly | 17.57 | 6.01 6.00 × 6.00 | 36.00 | 58,190 | 1,676 | 103.9 | |
| 2,984 | with practice | 17.61 | 6.00 6.00 × 6.00 | 36.00 | 62,990 | 1,748 | 112.3 | |
| 2,985 | A | 17.82 | 6.01 6.01 × 6.00 | 36.00 | 65,130 | 1,800 | 116.3 | 115.5 |
| 2,986 | water every | 17.87 | 6.01 6.01 × 6.00 | 36.00 | 71,410 | 1,984 | 127.6 | 60.6 |
| 2,987 | other day for | | | | | | | |
| | first 3 weeks | | | | | | | |
| 2,988 | Not sprinkled | 18.13 | 6.00 6.00 × 6.00 | 36.00 | 87,410 | 2,428 | 156.1 | |
| 2,989 | | 18.08 | 6.01 6.00 × 6.00 | 36.00 | 85,980 | 2,388 | 154.6 | 156.9 |
| 2,990 | | 18.11 | 6.01 6.00 × 6.00 | 36.00 | 86,880 | 2,407 | 156.6 | 42.0 |
| 2,991 | | 18.12 | 6.01 6.00 × 6.00 | 36.00 | 88,180 | 2,440 | 157.5 | |
| 3,003 | Mixed fairly | 18.18 | 6.01 6.00 × 6.00 | 36.00 | 90,400 | 2,511 | 161.5 | |
| 3,004 | with practice | 18.30 | 6.01 6.00 × 6.00 | 36.00 | 86,950 | 2,415 | 153.3 | |
| 3,005 | B | 18.28 | 6.01 6.00 × 6.00 | 36.00 | 92,840 | 2,577 | 167.7 | 161.7 |
| 3,006 | water every | 18.25 | 6.01 6.00 × 6.00 | 36.00 | 90,880 | 2,522 | 162.2 | 53.7 |
| | other day for | | | | | | | |
| | first 3 weeks | | | | | | | |
| 3,125 | Not sprinkled | 18.31 | 6.01 6.00 × 6.00 | 36.00 | 103,500 | 2,872 | 197.5 | |
| 3,126 | | 18.45 | 6.01 6.00 × 6.00 | 36.00 | 105,100 | 2,919 | 197.7 | 197.4 |
| 3,127 | | 18.32 | 6.01 6.00 × 6.00 | 36.00 | 106,900 | 2,969 | 199.9 | 44.4 |
| 3,128 | | 18.25 | 6.01 6.00 × 6.00 | 36.00 | 107,200 | 2,978 | 199.5 | |
| 3,133 | Mixed fairly | 18.46 | 6.01 6.00 × 6.00 | 36.00 | 117,300 | 3,258 | 209.5 | |
| 3,134 | with practice | 18.40 | 6.01 6.00 × 6.00 | 36.00 | 109,200 | 3,033 | 199.0 | 203.1 |
| 3,135 | C | 18.30 | 6.01 6.00 × 6.00 | 36.00 | 124,610 | 3,466 | 239.3 | 55.1 |
| 3,136 | water every | 18.36 | 6.00 6.00 × 6.01 | 36.00 | 120,010 | 2,989 | 198.8 | |
| | other day for | | | | | | | |
| | first 3 weeks | | | | | | | |
| 3,011 | Not sprinkled | 18.28 | 6.01 6.00 × 6.00 | 36.00 | 128,070 | 3,556 | 228.7 | |
| 3,012 | | 18.07 | 6.01 6.00 × 6.00 | 36.00 | 129,020 | 3,306 | 212.1 | 212.9 |
| 3,013 | | 18.06 | 6.01 6.00 × 6.00 | 36.00 | 121,620 | 3,378 | 217.2 | 48.9 |
| 3,014 | | 17.69 | 6.01 6.00 × 6.00 | 36.00 | 108,150 | 3,001 | 193.2 | |
| 3,019 | Mixed very | 17.82 | 6.00 6.00 × 6.00 | 36.00 | 110,080 | 3,083 | 198.3 | |
| 3,020 | with practice | 17.90 | 6.00 6.00 × 6.00 | 36.00 | 130,740 | 3,632 | 232.3 | 228.5 |
| 3,021 | D | 17.98 | 6.01 6.00 × 6.00 | 36.00 | 136,230 | 3,774 | 241.3 | 71.0 |
| 3,022 | water every | 18.10 | 6.00 6.00 × 6.00 | 36.00 | 134,700 | 3,736 | 240.3 | |
| | other day for | | | | | | | |
| | first 3 weeks | | | | | | | |

75 per cent. passing $\frac{1}{2}$ in. and retained on $\frac{1}{4}$ in. mesh, 75 per cent. passing $\frac{1}{4}$ in. mesh, 1c.ft. "Ferro-cement" (No. 76, 20).

| | | | | | |
|------|-----|-----|---------------|---|------|
| gal. | qt. | pt. | lb. | Percentage of Voids. | P.E. |
| 4 | 2 | 0 | 1 = 51.75 lb. | S.S. 17.83 ballast passing $\frac{1}{2}$ in. and retained on $\frac{1}{4}$ in. mesh | 41.3 |
| 4 | 2 | 0 | 1 = 40.00 lb. | " 4.729 sand " | 40.5 |
| 3 | 2 | 0 | 1 = 19.00 lb. | " 4.778 sand " | 29.1 |

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almost innocent, yet immediately the material is subject to any stress they develop in a most alarming manner.

(31) It has been found that the diameters of bars vary from that specified, resulting in one case of a loss of 12 per cent. in the area; excess diameter is also often met with, and as the final measurements are taken on a basis of the correct diameter, such excess of diameter will be the solution of the difference found between the surveyor's measurements

and the weight alleged to have been used by the contractor. Reinforced concrete work being designed on the assumption that the whole of the materials employed are exactly in accordance with the specification, a reduction in area of the bars is most serious.

(32) A. The ultimate strength should be taken at not less than 60,000 lb., and not more than 72,000 lb. per square inch. According to the diagrams, I think you will admit that it is necessary to keep a very careful watch

upon every piece of steel that is brought on to the site.

(33) The elastic limit is also of the utmost importance, as although steel might have a high ultimate resistance, the elastic limit might be so low that, in case an accidental load is placed on the work, a sudden collapse might take place; whereas, by use of material with a proper elastic limit, proper warning would be given before its sudden failure.

(34) It is essential that steel should be of such properties as will enable it to take a gradual and uniform extension, thus indicating a uniformity of quality; and the contraction of area at fracture should not be less than 45 per cent., which will confirm the properties of equal extension.

(35) A silky fracture indicates a uniformity, and a good mild steel so far as the metal, as metal, is concerned. Granular or fibrous grain indicates brittleness and unequal quality.

(36) Concrete.—I think it is safe to say that of all materials used in building trade, concrete is liable to, and does, vary more than any other material. Even if every care has been taken to see that each unit is of its proper quality and strength, yet we have in the finished concrete to reckon with a very large amount of human element. One gang of men may produce concrete of the best quality, and another gang on the same work, with similar materials, and give very different results. This depends a very great deal upon the head ganger, and upon the foreman who selects such ganger. With a good machine-mixer, the possibility of human errors is considerably decreased, but, at the same time, an improperly designed mixer is, in my opinion, more dangerous than mixing the concrete by hand.

(37) The Table 3 shows that concrete which has its setting somewhat retarded by sprinkling with water gives generally higher results than concrete which was allowed to dry under normal conditions. The question arises here, however, as to the consistency of concrete, not only from the point of view of the strength of the concrete itself, but rather as to what consistency will give the best results in actual practice from the point of view of contact with the metal, resistance to crushing, and shear, and although it is essential that as little water as possible should only be used to prevent airholes occurring after the water has been evaporated, I would feel inclined to use a concrete slightly wetter than the average practice in France, but certainly much drier than the general present use in England.

(38) Comparatively wet concrete will not allow of it being rammed or "tamped"; whereas to get a drier concrete into its correct position, tamping and gentle ramming is essential. As the whole of the strength of reinforced concrete depends upon proper adhesion of the concrete to the steel, it is an essential factor that the concrete is gently rammed at every point.

(39) The architect has therefore a much better chance of making sure that the concrete is properly placed in position and properly worked between the reinforcing metal, and the greatest trouble has been found to be with contractors wishing to make the concrete wetter than is desirable, owing to the fact that a wet concrete is more easily placed in position, and with much less labour than a dry concrete.

(40) The influence of the percentage of water used is the result of a series of tests which Mr. Kirkalby carried out for the purpose of arriving at some definite conclusion as to the debatable point of the efficiency of wet and dry concrete.

(41) The usual period of the first test on concrete has, until recently, been at 28 days; but with important structures, to obtain tests at 28 days after the concrete is made is not going to be of very much use for early correction when the work is being rapidly pushed forward; therefore a seven-day test is essential, so as to be able to immediately detect any error in any of the materials.

(42) At the present moment there are few tests at seven days, so that for the present the reasonable resistance of concrete at this

period has not been definitely ascertained. Such tests in connection with the 28 days' tests will also give most useful information with regard to when it is safe to strike the centering, and when one considers the failures that have taken place owing to the centering having been removed too quickly, a seven days' test will undoubtedly become a recognised factor very shortly.

(40) The 56 days and 90 days' tests are desirable as they show what is actually taking place in the work with regard to the increase or decrease in the strength of the structure.

(41) The concrete up to about six months of age increases in strength fairly rapidly; but it is curious that from about six to nine months the increasing resistance of thrusting stress is very trifling; but after nine months the strength of the concrete again continues to increase at a more rapid rate, although not so rapidly as during the first six months.

(42) For the purpose of research work, and where the importance of a job will allow it, it is most desirable that specimen pieces should be tested in sufficient number, so that each series of specimens are tested up to at least ten years of age. A number of specimens should always be kept, so that if anything should ever happen to any structure or part of same, one is in a position to test the concrete, and the steel, of course, could be tested from samples obtained from the actual work.

(43) By the kind permission of Mr. Kirkaldy, I am able to give you the actual detailed results of experiments to ascertain the resistance of the thrusting stress on 64 cubes made under various conditions at his works. (See Table 3.)

(44) You will find that there are many things to be learnt from this excellent series of tests. At 28 days the highest result obtained was an average of 2,225lb. per square inch, and at 90 days the highest result was 3,554lb. These two results can be taken as being the greatest amount of resistance that can be obtained from concrete made under the most favorable conditions, and it should be compared with the lowest results obtained, which are 1,026lb. per square inch in 28 days, and 1,787lb. per square inch in 90 days, with varying results between these two extremes, and the question arises as to which is the most probable result that would be obtained from work in actual practice in determining this; it might, perhaps, be desirable at the same time to inspect the diagrams showing the results of experiments on concrete taken from the actual mixing platform on several works.

TABLE 4.

Result of Grading of Sand.

| Sand. | Retained on 30 x 50 | Passed 30 x 50 | Passed 50 x 50 | Total. |
|----------------|---------------------|----------------|----------------|--------|
| p.c. | p.c. | p.c. | p.c. | |
| Sample 1 . . . | 29.0 | 15.5 | 55.5 | 100.0 |
| Sample 2 . . . | 49.2 | 14.0 | 35.8 | 100.0 |

TABLE 5.

Test on Cement Used for Tensile tests. Briquettes 1in. x 1in.

| Neat cement. | | | |
|---|-----|-----|-----|
| 3 parts standard sand to 1 part cement. | | | |
| lb. | lb. | lb. | lb. |
| 572 | 196 | 572 | 196 |
| 527 | 180 | 527 | 180 |
| 570 | 206 | 570 | 206 |
| 554 | 192 | 554 | 192 |
| 556 | 191 | 556 | 191 |

Mean of 5 tests 552.2lb. per sq. in.

Age 7 days.

(45) We have heard that in certain concrete works 2,000lb. per square inch is invariably obtained on concrete 28 days old; but I hesitate to accept this figure, and such high results are possibly accounted for by the fact that the tests might be made on a machine such as one which is used in conjunction with a mercury column, whereby a high result can be obtained if the load is put on suddenly. In all tests a sudden load will give a much higher result than a gradually increasing load.

(46) Effect of "Flour" in Concrete.—The question has often arisen as to the effect of very fine sand, or so-called sand, on concrete, and we have had two series of tests carried out on materials of this nature.

(47) Table 4 shows the result of the grading of sand. Table 5 shows the test on cement used for the specimen pieces.

Table 6 shows the result of tests to ascertain the resistance of thrusting stress on standard sand and cement.

Table 7 shows the result of tests on the briquettes containing the very fine materials.

Residue upon sieve 30 x 30, 0.0; upon sieve 76 x 76, 0.4; upon sieve 180 x 180, 10.5 per cent. Time of initial set (25 per cent. water), 3 hours; set hard, 91 hours. Pats remained sound in air and cold water, also in water kept at a temperature of 115-120deg. F., for 48 hours.

Le Chatelier test for soundness: Cement aerated for 24 hours, expansion 3.5mm.; after 7 days' aeration, expansion 1mm.; weight of cement per cubic foot.

| | |
|----|-------|
| 1. | 85.56 |
| 2. | 88.28 |
| 3. | 85.11 |
| 4. | 85.80 |
| 5. | 94.10 |
| 6. | 85.25 |

TABLE 6.

Result of experiments to ascertain the resistance to thrusting stress of cubes of standard sand and cement.

| Un-crushed. | | | Crushed. | |
|---|------------------|------------|----------|------------|
| Description. | Dimensions. | Base Area. | Total. | Per sq.in. |
| | in | sq.in. | lb. | lb. |
| From Bin | 3.00 3.00 x 3.01 | 9.03 | 41,440 | 4,589 |
| No. 22 | 3.00 3.00 x 3.00 | 9.00 | 43,480 | 4,831 |
| Neat cement | 3.00 3.00 x 3.00 | 9.00 | 42,240 | 4,693 |
| Aged 7 days | 3.00 3.33 x 3.01 | 9.03 | 41,230 | 4,575 |
| | 3.00 3.33 x 3.02 | 9.06 | 41,000 | 4,525 |
| | Mean..... | | 9.02 | 41,866 |
| 3 parts standard sand and 1 part cement | 3.00 3.00 x 3.00 | 9.00 | 10,420 | 1,158 |
| by weight | 3.00 3.00 x 3.00 | 9.00 | 11,080 | 1,231 |
| | 3.00 3.00 x 3.01 | 9.03 | 12,080 | 1,338 |
| | 1.00 3.00 x 3.01 | 9.03 | 10,440 | 1,156 |
| Age 7 days | 3.00 3.00 x 3.01 | 9.03 | 11,400 | 1,262 |
| | Mean..... | | 9.02 | 11,084 |

Not sufficient quantity of material of "sample sands." Nos. 1 and 2 to make comparative experiments to ascertain the resistance to thrusting stress.

TABLE 7.

| Test on briquettes cement and sand samples 1 and 2 for tensile strengths. Briquettes 1in. x 1in. | |
|--|--------------------|
| Sand sample No. 1. | Sand sample No. 2. |
| lb. per sq. in. | lb. per sq. in. |
| 112 | 178 |
| 108 | 180 |
| 102 | 170 |
| 103 | 191 |
| 100 | 168 |
| Mean 105 | Mean 1774 |
| Proportions: 3 sand 1 cement. | Age 7 days |

TABLE 8.

Results of experiments to ascertain the tensile strength, &c., of cement and rock dust, and cement and sand. Twenty specimens moulded here, immersed in water, and tested at ages of 7 and 28 days. Briquettes, sectional area 1sq. in.

| Cement and Rock Dust. | | | |
|--|-----|-----------------------|-----|
| (3 parts rock dust to 1 part cement, by weight.) | | | |
| Age 7 days. | | Age 28 days. | |
| Test No. | lb. | Test No. | lb. |
| Q.Q. | 64 | Q.Q. | 100 |
| 4,286 | 51 | 4,286 | 100 |
| 4,588 | 56 | 4,588 | 100 |
| 4,287 | 50 | 4,588 | 100 |
| 4,602 | 49 | 4,588 | 100 |
| 4,585 | 48 | 4,588 | 100 |
| Mean of 5 tests 53.2 | | Mean of 5 tests 101.0 | |

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| Cement and Sand. | | | |
|--|-----|-----------------------|-----|
| (3 parts standard sand to 1 part cement, by weight.) | | | |
| Age 7 days. | | Age 28 days. | |
| Test No. | lb. | Test No. | lb. |
| Q.Q. | 191 | Q.Q. | 264 |
| 4,269 | 184 | 4,605 | 229 |
| 4,602 | 183 | 4,604 | 245 |
| 4,600 | 177 | 4,607 | 248 |
| 4,601 | 173 | 4,608 | 199 |
| Mean of 5 tests 182.3 | | Mean of 5 tests 234.5 | |

(48) It will be observed from these tests that the average strength of briquettes with standard sand and cement gave a mean of 204.6lb. at 7 days, whereas the sand (Sample No. 1) gave only 105lb. per square inch, and sand (Sample No. 2) which contained a less amount of flour gives an average result of 177.4lb. per square inch.

(49) On Table 5 the extraordinarily different

weights per cubic foot of cement are given. The same cement was used, but different methods of filling were adopted. It certainly confirms the necessity of most carefully considering whether the cement for all work should not be measured by weight, and not by cubic measure.

(50) Another test, made as shown on Table 8, shows that with standard sand we get 182.3lb. at 7 days and 234.5lb. at 28 days, whereas with the test on "flour" sand as described on the table we only get 53.2lb. at 7 days and 104lb. at 28 days.

The rock dust used was that which passed through the 30 x 30 sieve. The standard sand was passed through 20 - 20 sieve, and retained upon 30 x 30 sieve. The tensile strength of the cement used in making the above briquettes was 480.0lb. per square inch at 7 days and 583.0lb. at 28 days. Residue upon sieve 50 x 50, 0.0; upon sieve 76 x 76, 0.6 per cent.; and upon sieve 180 x 180, 15.9 per cent.

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(51) A word with reference to the testing of the finished structure may not be out of place. Specifications often provide for the work to be tested with 1½ times the load for which the work has been designed to carry; a factor of safety of 4 is taken in the calculations to provide for inequalities of workmanship and materials, for allowing for fatigue of material under strain, and for isolated accidental excess loading. Considering that with 1½ times the safe load the concrete in compression is working up to 900lb. per square inch, adhesion 150lb. per square inch, 200lb. in shear, and steel varying up to 22,500lb. per square inch in tension, that by the application of such loads the parts so tested may be permanently injuriously affected.

If the materials are tested as suggested in this paper, and professional supervision is given to the work, tests on the finished structure are not necessary. If it is desirable, then only the safe load should be applied; and if no undue deflection takes place, no further loading can serve any useful purpose.

THE SOCIETY OF ARCHITECTS.

PROCEEDINGS.

The Fifth Ordinary Meeting of the Society of Architects for the session 1911-12, was held at 28, Bedford-square, W.C., on Thursday, March 7, 1912, at 8 p.m.

Mr. Percy B. Talbot, F.R.I.B.A. (Vice-President), having taken the chair, in the unavoidable absence of the President, three nominations for membership and ten for studentship were announced.

The ballot was then taken, and the following candidates were declared to be duly elected:

As Members: Edgar Oswald Brown, Hillcroft, Cross-jane, Grays; Archibald Ellis Claxson, 159, Victoria-street, S.W.; Percy Robert Fincher, Glyn House, Penryn, Neath; William James Kemp, jun., Fairlaw, Sutton-road, Muswell Hill, N.; John Melville Miller, c/o Hutchinson, Wood, and Miller, Montreal.

As Students: Walter Brooks, 2, Providence-row, Cleckheaton; Henry Stanley Clark, 55, Abercorn-place, St. John's Wood, N.W.; Mark Evans, 33, Empress-road, Kensington, Liverpool; Robert Charles Evans Griffiths, West Court, Bridgford; Frank Claude Haslam, 1, Rectory-road, Grays; Felix Holt, 22, Fort-street, Magazines, New Brighton; William Harry Marley, Buttrills-road, Barry; Walter Ann's Miller, High-road, East Ham; William Henry Bebbek, Mill View, Welshmill, Frome; Robert Harold Richardson, Clarence House, Clarence-road, Wood Green, N.; Charles Swain Rhodes, 4, Clifton-square, Lytham; John Edward Sanders, 208, Boaler-street, Liverpool; Thomas Scott, The Orchard, Lemington-on-Tyne; Thomas Edwin Turner, 26, Parliament-hill, Hampstead, N.W.; Alwynne Tutton, 76, Lynton-road, Gravesend.

Mr. A. Alban H. Scott (member of Council) then read a paper on "The Testing of Materials for Reinforced Concrete," of which the conclusion appears elsewhere.

Professor Henry Adams, F.S.I., M.I.C.E., in proposing a vote of thanks, said that reinforced concrete was a subject of great importance to architects, and would become of even greater in the near future. The L.C.C. regulations, which had been referred to by Mr. Scott, were not the most recent. The keynote of the paper was "Be sure of your work; let it be tested and supervised thoroughly throughout the whole of its course." Testing and supervision were very important matters where the work must be efficient and reliable, and like all scientific constructions where calculations had to be made, it was necessary to ensure that the material was in accordance with what it was intended to be, and that the workmanship should also be of the very best, because no unnecessary surplus strength was provided. When they spoke of a factor of safety of 4 to 1, there was really no such thing existing; the factor was merely to provide for some of the things which would happen but which could not be exactly measured, and he spoke of a margin of safety of at least 50 per cent. of cases a factor of safety of 4 to 1 was in reality only 2 to 1.

The author was to be commended for emphasizing the need for all tests to be in accordance with actual practice rather than under laboratory conditions. It was for practical use that tests were wanted, and in all cases the conditions in actual practice should be taken into consideration.

The testing of aggregate to ascertain its specific gravity was only required as an alternative means of estimating the amount of voids, otherwise he did not know that it was of any practical value. The testing of the water, too, he thought, was only necessary when the source of supply was doubtful, or when there was some reason to suspect the impurity of the water.

In paragraph 14 the author had stated that the cement for each six sets of specimens should be taken from the same consignment. He, the speaker, thought that that should read "each set of six specimens," because it was necessary in all tests to have a number in order to get a reasonable average; a single trial would not do. A number of sets of tests would include such a number of specimens as would give practically a continuous curve passing through each of the groups, which was one of the values of putting tests down to curves.

He supposed that the welds referred to in the paper were end welds, i.e., for the purpose of lengthening a bar, but there could be no possible objection to the electric welding in the crossing of the various bars. It was where tension came in that welding was questionable. As a rule the strength of a weld was 80 per cent. of the original bar. The 30 per cent. referred to by the lecturer must have been an exceptional case.

With regard to the consistency of concrete, the general preference among specialists was for it to be in such a state that after being poured and the water just floated on the surface and no more, with the concrete itself in a flowing condition. The author apparently advocated a drier mixture, but there would then be a greater difficulty in getting it into a good contact with the rods, especially under tension. A cubic foot of "Ferrocrete" cement was said to weigh 72.2 lb., and the weight of standard cement the author stated was 94 lb. The specific gravity was specified as 3.1, which meant 2.1 times the weight of equal volume of water, so that if a cubic foot really weighed 94 lb., 3.1 times 62 1/2 was 190 lb., then there must be 50 per cent. of voids in "four" cement, although it seemed very quite close. The mode of filling in the measure affected very considerably the weight of cement and that was the reason why it was desirable to take it by weight instead of by measure. The figure of 72.2 lb. would probably have been increased to 50 lb. if the measure had been filled in the standard manner.

The author had referred to the rate of setting of concrete, and had stated that

there was an increase in strength obtained by putting the load on suddenly. He, the speaker, thought Mr. Scott should have said "an apparent increase," as there was no more strength in the briquette than in the concrete, but only the indication of greater strength by adding the load rapidly was more remarkable in the testing of steel, and he remembered that in earlier days with the old-fashioned testing machines of the long level and scale pan type the operator was supplied with a number of weights of various sizes, and it required a great amount of dexterity on the part of the operator to change the several weights for a large one of equal value before going on again with the small ones, the object being to get on as many of the weights as possible before the metal gave way. That was at a time when there was no recognised rate of applying the load.

The coating of grout that was objected to by the author, was worded in the clause to the effect that it must be put on immediately before putting in the concrete, and not that it should be, which meant that if any coating was put on it should be done immediately before the concrete was put in, or not at all. Mr. Scott would be glad to hear that that was included in the latest draft, and there would probably be no mention as to coating with paint.

Mr. E. C. P. Monson, F.R.I.B.A., F.S.I., (Vice-President), seconded the vote of thanks, and said that the paper had been a very interesting one, from which all architects must learn a very great deal. It was of the utmost importance to see that concrete was well mixed; if done by a mixing machine it should be well done, and if by hand more particularly so, in order that when it set it should be a homogeneous mass taking good hold of the iron. The centering should be strong enough to take the load without allowing the concrete to sag in any way. As architects they had to be very careful in accepting designs which they received from so-called fire-proof specialists, which were very often not to be relied upon. If architects, however, were to make it a general practice to have these briquettes made, and samples of concrete taken, and submit them to some large testing works, it would be a very good thing.

Mr. J. Kirkby, I.C.E., supported the vote of thanks to the lecturer, and said he was quite in accord with Mr. Scott in his remarks about the coating of grout, and he was very glad to hear from Prof. Adams that the point would be got over in the final rules. He could, perhaps, contribute more to the value of the meeting by presently explaining some of the specimens on the table.

Mr. S. Bylander said the paper given by the lecturer was one of the best he had ever had the pleasure of listening to. There were several points Mr. Scott had drawn their attention to which he could not have done had he not been in very intimate touch with the execution of reinforced concrete works. He had, personally, found it a very difficult matter to submit the various materials to tests. In the construction of the Automobile Club some hundreds of tons of cement were used, and the work was very anxious that it should be properly tested. He therefore arranged that the cement at the works should be placed in bins and sealed, and then samples taken and tests made, and when found satisfactory the cement was to be taken to the job. The principal difficulty in carrying out more exhaustive tests seemed to be the question of cost. With regard to the testing of finished concrete, he thought it would be an advantage to have some rule to work by, and he hoped that the Engineering Standards Committee or some such body would take up the matter and issue some sort of rule. With regard to the form of the test pieces, he certainly thought 4 by 4 was not satisfactory, the aggregate used being too large in size to be properly placed; a 6 by 6 would be much better. The strength of steel being 62,275 lb. per sq. in., he would like to know if Mr. Scott thought the tensile strength to 72,000 lb.

He did not understand the author's reference to the elastic limit of steel. His, the speaker's, idea was that it was necessary to

have a high elastic limit, because it was really that which determined the safety of the structure, and not so much the ultimate strength of the material. They did not wish to have a very hard steel because it was brittle.

In paragraph 22 Mr. Scott referred to "Aggregate and Coarse Material," but he understood it to mean "Aggregate or Coarse Material," the latter being the term adopted in the regulations.

Mr. G. A. T. Middleton, A.R.I.B.A., (Hon. Librarian), said it had rather surprised him that both Mr. Scott and Prof. Adams had remarked upon the fact that cement was now tested by weight per cubic foot, and he thought it would be very much better to test by specific gravity. He would like to ask what percentage of water Mr. Scott would advocate as a general rule; he believed 20 per cent. was usual. It appeared to him that a dry mixture had its disadvantages. Mr. Scott had spoken of having put his steel members three-quarters of an inch apart, but that he preferred to put them one inch apart. In a complicated structure with a great deal of steel work it must be exceedingly difficult to tamp the concrete right down to the bottom, whereas with a comparatively wet mixture it could be more readily tamped, and would leave the bars in their original positions. It had interested him very much to hear the remarks of the lecturer regarding the percolation of water in the case where the curbs of a flight on a large concrete roof were not put on at the same operation. The floor appeared to be of a very large area, and he presumed that the whole of them had to be put in at one swing, that there must not be a break of a day between one operation and another. He imagined that must be the case in large areas where water percolation was a matter of very great importance. He quite agreed with Mr. Bylander that the paper they had heard from was one of the most valuable technical papers ever read before the Society.

Mr. P. M. Fraser, A.R.I.B.A., said the subject of reinforced concrete was particularly interesting, and one which he had studied for a number of years. He thought they did not quite realise that cement and steel could only be tested under laboratory conditions, which argued that the testing of made concrete was more valuable than the testing of cement and steel. No means had been devised, so far as he was aware, for testing reinforced concrete blocks, and it had often occurred to him that there should not be much difficulty in testing a twelve inch cube of concrete slightly reinforced. He heartily endorsed Mr. Scott's remarks that the general contractors had taken to reinforced concrete construction like ducks to water, and he wished the same could be said of the professional man. It was quite remarkable to go on a job and see the way in which the contractors turned out consistently good work with better results than could be boasted of by those on the Continent or in America. Mr. Middleton advocated wet concrete because it was easier to work with, but it had been proved conclusively that dry concrete was stronger than wet, and to advocate the use of the latter because it was easier to work was a very, very immoral precept. The testing of materials after its delivery at the works was a matter of very great importance. They all knew the way cement was sometimes stored, in a shed made of say 50 per cent. weatherboard and 50 per cent. daylight. When the cement was stored in such a place, a colored shuck at the end of the job they got cement which had been lying there possibly nine months, and that was the cement which required testing.

In paragraph 9 Mr. Scott advocated four tests for aggregate, and there might have been added a fifth, he thought, for testing the maximum and minimum sizes. The L.C.C. regulations stated that what was known as the "hopped curve" colored shuck should be relied upon for resistance. He hoped it would be cut out of the revised edition, because it was a bad principle for the reason that, taking two columns of the same size, one reinforced and the other plain, if the

reinforced concrete was calculated on the "hooped core," it would be found that the plain concrete column came out stronger size for size than the other, which was, he thought, an absurdity. The difference between hand-mixing and machine-mixing was very real, and an analogy might be drawn between the stoker of a boiler and a stoking machine, the latter giving far better results than the human stoker.

With regard to the speed of testing and the running up of the apparent strength, a few weeks ago he had been present at some testing operations at the makers, and had asked permission to use one of the machines, as it was obvious that the men were testing too quickly. Upon easing the rate of loading he obtained much lower results, with the obvious retort that he knew nothing about testing.

With regard to the weight of cement and concrete, some added by weight and some by cubic feet in specifications, got over the difficulty by weighing the cement on the job, and altering the size of the gauge-box to accommodate 90lb.

Mr. J. H. Pearson (Member) asked for a further explanation of the diagram referring to Aggregates and Sands. He understood that the lecturer had constructed a roof 4in. thick of concrete, and which had not been rendered on the surface in any way, yet which was made proof; and he would like some information as to the manner in which that concrete was made up. Mr. Scott had called attention to the difficulties which arose in getting a joint between two sections of reinforced concrete, dealt with on two separate days, but under certain conditions he thought it would be impossible for the second section of concrete to follow immediately after the first, and in those circumstances he would like to know what the lecturer would suggest to get over the difficulty of preventing any water percolation.

Mr. H. T. Cover (Member), asked whether Mr. Scott had made any experiments regarding the strength of concrete floors. He came across a case recently where some workmen were lifting a load of two tons on a jack, with a base 4in. square, placed between two steel joists 5 by 3 of 4ft. span and 4ft. apart, with six inches of concrete.

Mr. Percy P. Tubbs, F.R.I.B.A. (Vice-President), said he had had very little experience in the use of reinforced concrete, but what he had done had not turned out very satisfactory, nor had he found it cheap. He had recently had occasion to use it to carry a surface drain where the foundations were too bad to support it in the ordinary way, and the local authority had required him on a 4ft. span with a beam 18in. square to use 2in. of steel. He might as well have used steel joists. The supervision of reinforced concrete work put additional responsibility on the architect, who, if he undertook such work, should be paid not only for his professional services, but for acting as clerk of works also.

The Chairman then put the motion to the meeting, and a hearty vote of thanks was accorded to Mr. Scott for his lecture.

Mr. A. Alban H. Scott, in reply, said he was very pleased to hear from Prof. Adams that the clause referred to was to be cut out of the regulations; he did not know whether it had been finally adopted by the Council, but he hoped that it would be.

With regard to the question of the weight of cement, he believed that in the original report of the R.I.B.A. Sub-Committee on Reinforced Concrete the weight was specified 70lb. per cu. ft., and the tests in the tables referred to were made under the same conditions, and since then the 90lb. had been adopted. The question of the weight or measure of cement was far from satisfactory, however, and as Mr. Fraser had said, they all had adopted a method of testing the weight of cement per cubic foot, and they would see at the bottom of one of the tables the extraordinary results they had obtained. They so increased their cubic measure as to accommodate not less than 90lb. It was fairer, way both to the contractor and to the client, and it certainly got rid of carelessness on the

part of workmen in throwing aggregate into the measure. There was enormously hard wear on any form of weighing machine; the scales were full of truth within two or three days of their use.

Mr. Monson had referred to the difficulty of making tests themselves, but he had specifically mentioned in his paper that all tests should be made by an independent firm for many reasons, one being that no architect or engineer, no matter how large their practice might be, could possibly afford the plant and apparatus necessary to get proper results, and any home-made tests were useless. They did not show at all what the ultimate strength was, and it was impossible for any individual to get a machine to test steel up to, say 72,000lb. per sq. in. Even £2,000 per machine would be impossible for any architect or engineer with the largest business, and no matter how well up in these matters an architect might be, he could not be an expert in testing; he might be interested in the subject, and deduce his opinion from the ascertained facts of other people, but he, as an architect, was not the proper person to carry out the tests.

The only real test on the job was the test of the structure, and that he was dead against, unless they could lead to the super-imposed load for which the structure was designed, and he hoped that when the L.C.C. regulations came into force that some of the work which would be subjected to a test of 1½ would collapse without loss of life, because in his opinion it was asking for trouble and weakened the structure.

Mr. Kirkaldy had very kindly lent some of the test specimens before them, and had ordered to explain them at the conclusion of the discussion. One was a brickwork bank which had collapsed, probably through the concrete being too wet, giving a very large percentage of air-holes after the evaporation of water, and, possibly, through too much sand being used and insufficient cement.

It was glad to hear that Mr. Bylander did not agree with the 4 by 4 cube for testing, as it was not sufficiently large for testing with the aggregate they were using—namely, ¾in. The reason he advocated a 6 by 6 cube was that it was better made and was more of a shape which was adopted in work generally, and with a circular column they were all the time tending to get a very much better and consolidated mixture than they did with the square one, because in the former they could ram so much better than with the latter, and with the square one they could not get into the corners. With a 6 by 6 by 12 a double quantity of material would be required, and on a big job the cost of material submitted for testing was quite considerable. He did not think a 6 by 6 by 12 would serve any further purpose than a 6 by 6 cube. The former was apt to bind the material for perhaps one-hundredth part of a second longer than the latter, which was quite large enough to give them results which they could reasonably expect to get in a job.

Mr. Bylander had asked why he limited the strength of steel to 72,000lb. His answer was that if they got it above that they would have a tendency to increase the carbon, and with high carbon steel there was a possibility of a grain forming in the metal. If they increased the strength of steel beyond 72,000lb. there was a tendency eventually to increase the safe load. It was impossible, he thought, to increase the basis of 60,000, and it gave the steel a strength of 12,000lb. which was ample. If they allowed them a greater range than that it opened up the possibility of makers using a foreign loom, whereas with British steel they had a better chance of getting fineness in the metal. The term "Coarse Material" was now used instead of "aggregate" in all official documents, and he had adopted it.

Mr. Middleton had suggested that a proper proportion of water should be stipulated; but it was absolutely impossible to determine the point, because it depended upon so many things. First of all, upon the kind of aggregate used, then the way in which the cement was put in, the temperature, and so on; and while on that day a certain proportion would be found ample, on another, when the

sun shone, the same proportion would be altogether unsuitable. The exact proportion of water could not be arrived at, although the matter had been before experts a great many times.

The question in regard to the disadvantages of wet concrete had been very forcibly answered by Mr. Fraser. He did not see why they should sacrifice good work for the sake of a little extra labour on the part of the contractor, who knew exactly what they wanted and allowed for it in his prices. The very best work must be had or they had better leave the whole matter alone. The cost of concrete at the present time was 25s. or 27s. per yard, and he did not care if the price rose to 30s., so long as better work was given for it. With regard to the percolation of water through the joints in concrete in the particular case he had instanced, the work was situated in a very windy place and one where 0.8in. of rain fell during the year. When he made the remark that water percolated through the cracks where the concrete had been joined, he meant to say that they did not get such perfect adhesion as was obtained when the concrete was laid in one operation, but they did get sufficient to protect the metal from the weather, and it was good enough for all ordinary purposes; but when they came to it to stand under great water-pressure the leakage was always at the juncture of the material. The surface should be well dried and washed, and then backed away before the next concrete was laid down; but it would never be so strong as if it were laid all together. He did not know that any useful purpose would be served by testing a 12in. cube of reinforced concrete; it would necessitate very elaborate arrangements that people could not undertake it, nor could their clients be asked to have it done on the job.

Mr. Fraser said he could not understand why only part of the concrete within the metal hooping should be calculated for resistance compression in the L.C.C. regulations. There was a great tendency to increase considerably the amount of hooping, and also the area of the bars would be much more than was the usual practice. In doing that it was proper to only take the interior part of the concrete, because with so much metal and the hooping so very close in the concrete, which was probably only 1½in. beyond the metal, there was a possibility of the steel separating the concrete into two different forms of structure. There was not the same strength on the inside of the column as on the outside, whereas with plain concrete there was more or less equal strength.

With regard to the roof of reinforced concrete to which he had referred, there was no lead upon it, and there was a fall of 3in. in 75ft. The concrete was well done, the proportion of the material being 3 of cement, 5 sand, and 1 of aggregate. A proportion of 1 to 5 was not a very rich mixture, but it must be borne in mind that they were measured separately; when mixed, it was more like 1 to 4½ or 4. The remarks made regarding 5 by 3 steel joists, with concrete between, taking a load of two tons, showed the possibility of concrete, and indicated the further possibility of steel. Their Chairman had spoken of the financial point of view, and he, the speaker, could assure them that reinforced concrete would never have been used in England by industrial firms if the financial question had not entered into it to a very large extent. Flat roofs were infinitely cheaper and floors of reasonable span could be done cheaper in reinforced concrete than in steel or brick. Ordinary ship sheds were cheaper, and the whole matter was a question of proper design. A beam 18in. by 18in. was probably the most uneconomical section one could have in reinforced concrete. A 9 by 20 or 9 by 24 would probably give the same strength, with much less material, and the 2in. of metal mentioned did not seem very excessive.

Architects' supervision was a very big point. Reinforced concrete was work which should be done properly or not at all. He, personally, never employed a clerk of works, but sent out trained assistants, who superintended the job, with the help of an inspector. By such means they got infinitely better results; their clients paid their

assistants and inspectors while on the job, and it got over all the difficulties of supervision. After all, an architect was only responsible for reasonable care and attention, and he had never seen a job where the architect had given reasonable care and attention come to any harm.

THE ARCHITECTURAL ASSOCIATION.

The fortnightly meeting of the Architectural Association was held on Monday evening at 18, Tufnell-street, Westminster, the President, Mr. Gerald C. Horsley, F.R.I.B.A., occupying the chair. Mr. H. A. Hall, Hon. Secretary, announced that a visit would be paid on March 16 (to-morrow, Saturday) to the new King's College Hospital, now in course of erection from plans by Mr. W. A. Price.

A. Price to meet at entrance in Bessmer-road, at 3 p.m., and that the annual smoking concert and revel of the A.A. Athletic Club would be held on Tuesday, the 26th inst., in the Pillar Room, Victoria Station Restaurant S.W. The President proposed that hearty votes of thanks be accorded to Mr. G. Norbury for the gift of a number of good models of English cathedrals, and to the Society of Dilettanti for presenting to the library a series of plates from F. C. Penrose's "Athenian Architecture"; also to the secretary of the Hampstead Garden Suburb Trust for conducting a party of members over the two new churches on the estate, and to Mr. E. L. Lutyens for lending the drawings for inspection.

TENURE OF OFFICE OF HON. SECRETARY.

The President announced that at a special meeting of members only, held immediately after the ordinary one, it was unanimously agreed to alter By-law 36. As passed, the by-law now provided that the office of Hon. Secretary shall not in future be held for more than *two sessions consecutively*, whereas by the present rules that office was only tenable for a single session.

THE HOUSE LIST OF NOMINATIONS.

The President read the following list of nominations of officers and Council for the forthcoming session, 1912-13: President, "Gerald C. Horsley; Vice-Presidents, "W. Curtis Green and Maurice R. Webb; Hon. Secretary, "Henry A. Hall; Hon. Librarian, "W. H. Ward; Hon. Editor, "A. Journal, "P. Cart de Lafontaine; Hon. Treasurer, "Arthur Keen; members of Council (fourteen nominations, eleven seats). "A. T. Bolton, "C. C. Brewer, H. P. Burke Downing, F. E. Eden, "G. L. Elkington, Theodore Frye, "Stanley Hamp, "A. C. Horsnell, "Geoffrey Lucas, A. G. R. MacKenzie, F. W. Newman, "G. C. Newton, "S. Scott, "J. Allen Slater, and "W. J. Tapper. (An asterisk denotes proposed re-election; a dagger suggested change of office.) Any further nominations must be sent in by the next ordinary meeting, signed by any two ordinary members.

AMERICAN ARCHITECTURE.

Mr. C. A. Daubney, F.S.I., A.R.I.B.A., Godwin Bursar in 1902, read the following paper, giving the salient impressions derived from a study-ship tour in the States. In the course of some preliminary observations he remarked that he did not dare hope to reveal the startling beauty and variety which he saw at the present day. There was much in it that was good and hopeful side by side with much that was bad and hopeless. All he would desire to indicate certain phases which might lead architects to investigate and study the subject more fully. The subject, the lecturer continued, divides itself naturally into environment, execution, and education.

ENVIRONMENT.

In considering American architecture there is bound to recognise its recent birth. There is no long line of tradition to study, the soil and the people the pen. Substantially no historic masterpieces dating from the heroic times are readily at hand for study and reverence. The architect must largely import his ideas, and must trust in the preparation of his designs to the very unsatisfactory practice of illustrations and photographs rather than to the works themselves. A moment's consideration will show that in such

circumstances two things must happen. The strong man will demand to have before him clear and explicit records of the best works corresponding to that upon which he is engaged. If he cannot recreate their atmosphere, he will at least grasp the detail. His work shall be correct and technically good, even if in the transportation of the design the spirit has been irrevocably lost. The weak man, on the other hand, will probably try to distract attention from his deficiencies by riding off on his own unregulated fancies into realms of wild experiment which other workers of mature experience have long since learned to shun. In some such way it is possible to account for the extreme care and completeness of much of the work. Comparisons are always odious; but one is forced to the conclusion, on that nakedness of some of the modern work on this side is not entirely due to the poverty of the client or to a desire for severe simplicity at any cost, but rather to a lack of capacity on the part of the designer to tackle a more ornate and possibly more profitable work. The English architect, on the other hand, demands that the architect should possess great capacity for work and organisation, and must be ready to switch off his staff from the elaborate calculations for a sky-scraper to the design for a cathedral, an exhibition building, or a pavilion in the park. I venture to suggest that there are few, if any, of our architects who could control such a staff as is to be found in some American establishments. One cannot, of course, magnify beyond its proper limit the virtue of expedition in the preparation of working drawings; but there is some, thing to be said in the favour of those who can, for instance, prepare in six weeks the complete drawings, including all the necessary elaborated calculations, plans, and details, for a million-dollar sky-scraper. It demands a sure and certain grasp of the business and a complete knowledge of at least one side of the profession. Another factor having important bearing upon the architectural problem is the rapid development and change on every hand. Within the last generation, for instance, the larger number of schools and business centres have been rebuilt, not for the reason that the buildings were decayed or unsuited to the needs of the times, but solely because there was a demand for business accommodation which exceeded the supply. It was a perfectly sound financial undertaking to tear down the old buildings and erect new ones on the same site with improved plans, and this was accomplished by carrying the roof and the upper stories into the clouds. An architect is not human if he is not vitally affected by such an environment. He will work for the immediate present and not in the knowledge that his building will in all probability be, for good or bad, a lasting landmark for the next dozen generations. True, in many of the more permanent buildings, such as the colleges, municipal and State institutions, there is a different element. We find there a keen effort to give character to the work, if, however, there is some tendency towards the fantastic and bizarre. Such buildings are usually subject to competition, and in view of the shifting character of personnel of the client it is not surprising to find that the attractive design may be the successful one, whereas the more appropriate one is ignored. It might be hoped that in the smaller buildings of permanent character, such as local schools, churches, and the like, some trace of a national feeling would be found. There, however, is the all important element of distance to be considered, as well as in America. It is almost impossible for the well-known men, who, of course, congregate in the centres of population, to deal successfully with such comparatively trifling works, often at an enormous distance from their offices. It is to be feared that these buildings are being more and more dealt with by local architects, who, in consequence, are compared to erect attractive buildings, as per catalogue, in any spot at a fixed rate from New York to San Francisco. Even in purely domestic work this commercial element is most painfully in evidence, possibly more so than in our own cities. The man who suddenly rises will have no difficulty in finding what he wants from the flood of cata-

logues of country houses which immediately overflows his letter-box. The architect is caught in the stream. He must carry out instructions, and the astonishing fact remains that an architect with a wide reputation will erect some hideous monstrosity apparently without turning a hair. He might be forgiven if he were ashamed of the job and endeavoured to forget it as quickly as possible. But this does not obtain. He will advertise his misdeeds without compunction side by side with other works of his own of which he may reasonably be proud. I was, for instance, taken by a well-known architect to a seaside residence built at some considerable cost, but which, in my opinion, was disfigured beyond redemption by having the principal reception room panelled throughout in polished red mahogany, in a style which might be appropriate to the bar-parlour of a saloon, but certainly out of place in a private house. Another element which militates against much real progress is the growth of specialists. Not only do the ordinary trades, such as carpenters, joiners, every hand, but they will go beyond their European prototype by contracting to carry out an architect's small-scale design, with detail and ornament of high technical and perhaps artistic merit, without the architect in the multitude of the other concerns of his profession having to trouble himself too much on this head.

EXECUTION.

The American architect appears to have wider responsibilities than the architect here. This is more particularly true in the case of the larger works. There is a very general understanding that each man should rule his own roost. The architect will be expected to produce a satisfactory result without having to be guided, except on general lines, by the client. It may be that the client is only building as an investment, and knows nothing of good or bad work. In such circumstances the architect will probably find himself with an absolutely free hand. This will demand from him close attention to rule and convention. Any hostile criticism of eccentricity of design will be regarded as an interference by a purely commercial speculator, and so we find an amount of restraint upon originality and genius. Another restraining element is the fact that in most of the large centres there is a very rigid building regulation which demands the production of full plans, details, and calculations for inspection by the local authorities. In order that a building permit may be obtained, the architect must submit information which will delay the permit being issued, and the work itself will be consequently retarded. Novelty or variations from customary procedure will, as may be expected, be looked upon with suspicion by the building officials, and cause, possibly, lengthy explanations and inquiry. When his building permit is obtained there is the risk of objection by the building inspector if variations from the approved plans are attempted. In this position the architect will also feel compelled to work upon safe lines. He can not have the luxury of watching his building develop and of making alterations and improvements in the design as the work proceeds. The one element which affords the architect an opportunity of exhibiting his genius free from all such trammals as have been referred to above. I venture to suggest, however, that these isolated cases do not represent the main stream of architectural life in the country. Remember, too, that native art-craftsmen copied from the existing. Do not let us forget that we are here discussing American architecture, and I make the distinction between a native effort towards an ideal which shall be characteristic of the land and its marvellous people and an architecture which may largely consist of careful adaptation of European models, but which shows no real ground for hope of progress in

the near future. An acrobatic performance on the highway may excite the admiration of the crowd, it may result in a splendid shower of coin, but the man who has been plodding on all the time, drinking in the beauties of the way, will find his pockets lighter than his friend's away back in the crowd, but he will be farther on the road when the day begins to close.

EDUCATION.

Whatever I have said which seems to criticize adversely the methods must be discounted in considering future prospects. Architecture will be safe from degeneration if continued effort is made on proper lines to train the coming generations. Not only will it tend to develop the art of architecture, but it offers a restraining influence upon the eager but unqualified who press into a profession which to-day offers splendid prospects for a useful youth. A high standard of education is becoming more and more essential. The tremendous interests, both public and private, which are at stake in many of the large undertakings demand a technical skill in the first place which does not but rarely obtain here. Public sympathy is shown on the part of rigorous examination and qualification for all practicing architects. This is a hopeful sign, and the universities are alive to the necessities of the case. Harvard, for instance, offered a five-years' course. There was an entrance examination which included English, French, German, Physics, Drawing, and Histories of Greece and Rome. The student had the advantages of a hall of casts, painting room, exhibition-room, modelling room, library, photograph dark-rooms, etc. The first year's course included the Technical and Historical Development of Ancient Styles, Drawing in Line and Colour, Mathematics, Languages, and Physics. In the second year, Design, Perspective, Statics, Resistance of Materials, Medieval, Renaissance, and Modern styles were added. In the third year, Building Construction, Theory of Design, Materials, and Foundations, and Mineralogy were taken. In the fourth year, in addition to general topics, two special subjects had to be taken from a list which included Design in Painting, Sculpture, and Architecture, Greek Art, Fine Arts of the Middle Ages and of the Renaissance, Classical Archaeology, Private Life of the Romans, Life in Ancient Greece, Landscape Design, Aesthetics, Bridges and Buildings, Health and Ventilation. The average gross cost to the student for residence and education was only £100 per annum. There was a somewhat similar programme given in connection with Washington University, and a somewhat similar cost. The Massachusetts Institute of Technology at Boston gave a very full five years' course with a continuous training in design for three years' Freehand Drawing throughout and one complete year in the Life Class. A feature of these college courses is the summer schools. One was in the form of a tour of Europe, particularly for the study of the work of the northern towns of Italy, finishing with a bicycle excursion from Genoa to Paris. The University of Pennsylvania offered three separate courses—viz., a four year course leading to the degree of Bachelor of Science in Architecture, another course leading to the degree of Master of Science in Architecture, and a shorter two-year course. There was an additional three years' course in Interior Decoration. The Syracuse University provides almost equal facilities for the student. These are but illustrations of the numerous facilities for study and preparation for the profession. The total result is generally seen in the fact that the majority of the young men in the offices of practicing architects are college men with a college degree. Incidentally, there is a minimum of the mechanical drudgery which in many London offices is handed over to inexperienced youths who may possibly grow up to exploit the special features of the work done by their employers. In one may venture into the realm of prophecy. It must be to express the belief that there is a bright prospect for architecture in America. The question is whether this will be realised in the near or distant future depends upon one main factor

—viz., the education of the public in the taste for the beautiful. As matters stand at the present time, art may be degraded and good taste may be corrupted by being compelled to follow on the heels of those who act on the principle that just as in some commercial undertaking wealth and power can demand a rigid obedience, so in the realms of art the artist must follow the lead of his employer, provided he can purchase his compliance at a princely price. The good time would be a measure of the measure of the measure of period of commercial depression. Architects might then find time to turn their attention to the everyday affairs of the community. A tenement house would not then be recognised as now, as a ghastly imitation of a factory, or the ordinary suburban dwelling as something very much akin to a wooden barn. Architects might then find time to rise above the degradation of the public streets by hideous advertisements and encroachments upon the public convenience by corporations whose only concern is for the dividends of their shareholders. There would then grow up a corporate sense of what is good, and that a man should not have a free hand to offend the good taste of his fellow-citizens, even though he may be a successful business advertiser. In conclusion, may I again venture a prophecy that if we are anxious to make real progress we shall do so only on the lines adopted with success in the States. Registration is a futile procedure if it results only in shutting within a ring fence the good and the bad. We must begin where all real progress begins in the school and in the workshop in the public Press, in the common affairs of life. When the authorities who are responsible for the bridges across our rivers and the lamp-posts in our streets, when the factory and mine proprietor who can and does blast the landscape and ruins our buildings by the reek of his works, when the workman, as in days gone by, when it is as good as a law, does a beautiful thing as it is to make an ugly thing, when the community at large expects that the little things of life shall be presented in a true and beautiful form, we shall have no cause then for anxiety for those larger works which have too long been looked upon as the only and proper sphere for the architect and artist.

Mr. C. C. Brewer, the Godwin Bursar in last year's competition, said: The chief characteristics of American architecture to-day seem to me to be vigour, competence, singleness of purpose. All these are, of course, the outcome of the national spirit, the amazing commercial activity, and the climatic conditions. A country progressing in the material and the mechanical, crying need of a race of competent and vigorous architects, and forces them to the single purpose of erecting the best possible building in the shortest possible time. It leaves them no leisure for the "Hopes and Fears of Architecture" or "Philosophic Doubts." In judging the work of architecture in any age, the chief thing to be held in mind is only fair to put out of count perhaps 75 per cent of the buildings. We must judge by the large public buildings, the railway-stations, the office blocks and stores, and by the thoughtful and more serious domestic work for either the rich or poor. An international comparison of cinematograph palaces, public-houses, and the domestic vulgarities of the *nouveau riche*, on the one hand, or the meanness of the jerry-builder on the other, would be neither to the point nor profitable, for the first are merely a form of pictorial advertising, and the jerry buildings are surely temporary structures within the meaning of the Act. In America, however, I believe that there is a smaller percentage of both the blatant and the mean than in most European countries, or the Americans are dealing with big schemes and new ideas even in advertising, and mean buildings grow less mean when set in the ample suburbs of American cities. As an example of what I mean by big ideas, even in advertising, I would instance the New York Pennsylvania Railway Station in New York, a new station becoming necessary, the idea that the finest and largest station in the world might be no bad advertisement seems to have occurred to

the directors, and their next step was to employ an architect of large and fine ideas; their choice fell, luckily, upon Mr. McKim. He seems to have been the only one of their scheme, but surely his enthusiasm must have carried them on till the undertaking grew almost in the spirit of cathedral builders. The result is a temple to the glory, not only of the Pennsylvania Railway Company in particular, but of well ordered and swift transport. Imagine an entire railway station with its fittings and furniture, even to the spittoons, designed and erected by a railway-station so planned and so contrived that there is no noise nor bustle, where no porters intrude with luggage, and where it has even been thought worth while to forego the profits of the bill-sticker that all may be well ordered and dignified. It is as if the directors had said: "We will startle the public not with glare and noise of war-making, but with dignity and respect." And so to-day the conception of a railway-station as a dignified thing seems to have taken hold of the Americans, and we have the big Washington station and others in the same spirit. Comparing these with the three latest termini in London, the Great Central and the two at Victoria, which had not even the sense to be one—we weep for London. The idea of the dignity of commercial enterprise seems growing upon the business men and showing itself in the stores, office buildings, and banks. Can the Americans be learning the market value of repose in the midst of their strenuous life? It may be argued that there is no real newness in the great Pennsylvania station, that the hall is a mere translation of the Baths of Caracalla, on, I believe, a larger scale; that the detail on this and most other buildings of the same type in America is directly taken from Italy or Greece. This brings me to the wider criticism of their architects which is so often made by Americans to-day, that they are not evolving a national style. It is surely difficult for contemporaries to judge whether or not a style is being evolved in any art, and it is probable that the same critics, had they lived in the fifteenth century in Italy, would have been chiding the architects for being mere copyists of the Romans. I cannot believe that men who are approaching architectural problems with the freshness, vigour, and clearness of thought of the Americans of to-day will not leave behind them something worthy to be called a national style, even if they are content, for the while, to use and reuse the language of the past. Speed and hustle are the natural parents of copying in architecture. The man, set face to face with enormous problems, constrained to find speed, turns naturally to the textbook for his details, and I am not sure that, given speed as one of the conditions, the results do not gain in the process, for the architect has the more time for mass and the big idea. Certain it is that the trend of architectural training in America is to this end—to train competent architects, not to produce a class of dilettante thinkers and writers on architecture. The man who knows where to find chapter and verse in those wonderful libraries which seem to be a sine qua non in every large office, and how to use the matter when found with a competent good taste and discretion, is the man to help the designer of big schemes, and the man who can not only see a draughtsman on the architectural side of a big office without a great folio of Renaissance or Classic art at his elbow. A word as to training. Mr. Daubney has given a rough sketch of the curriculum in vogue some ten years ago, but has said no word as to the influences at work within the schools themselves. That is entirely French and one will deny. At the time of my visit Harvard was preparing to celebrate the arrival of a French horn, speaking, and trained Professor of Design, and Harvard was the last college to hold out against the Beaux-Arts tradition. All the others had already either Frenchmen or Americans trained in the French manner as their guiding spirits. Harvard and Boston architects and long fought for training on more English lines, but the force of the Beaux-Arts movement, as evidenced by the roll of students in their own and other colleges,

counselled surrender. In the face of this it is a matter of surprise to me that American work is not showing even stronger evidences of the French influence. This may be somewhat accounted for by the great influence of McKim, who, although French-trained, yet drew most of his inspiration for his later work from Italy. But I hope the reason is rather the growing strength of a tradition of their own, a strength fostered by the individuality of the American character, and their brilliant qualities of self-reliance and rapid, straightforward thought. As to the influence of their colonial style, this seems to me for the moment under a cloud. Much that has been perpetrated by the jerry-builder under cover of the word colonial has swung the pendulum of fashion a little far from New England and Virginia, and, although many men of taste and culture are using the vernacular in their domestic work, one is a little sorry to find that development along these lines does not seem likely. The lack of medieval building in America itself and, latterly, the want of any real doubt account for the poverty as a whole of the ecclesiastical and domestic work. The wave of the Gothic revival can only have been a feeble ripple by the time it reached the States, for it left behind it a trail of thin and wiry buildings of unimaginable meanness. Richardson, with his strong, if at times somewhat clumsy, hand, left his mark upon the town halls and churches of New York, and was followed by less strong men, who by their eccentricities soon brought his manner into disrepute. His influence seems to linger to-day only in the West, where the work of that brilliant architect and contriver of clever detail, Mr. Louis Sullivan, still shows signs of early Richardsonian influence. The success of Cram and Goodhue's Gothic scheme in the competition for the rebuilding of West Point, and the masterly manner in which they are carrying it through in the face of much adverse criticism, is evidence that there is now a finer feeling for Gothic work. The French and Classic tide is not quite sweeping all before it, and there still remains a small but faithful band of thoughtful men "the Englishmen," they sometimes call themselves—who are fighting against it. The little leaven of their work may not be without good effect upon the lump, especially in the one quality in which American work of to-day seems lacking. On returning to England our work, at all events in our towns, had a very depressing effect on me. It seemed mean and muddled, and with an uncertainty and a hesitancy about it as if we had been for many years without a goal, and our public buildings strongly reminded me of the criticism upon them of a candid American architect, who, when pressed to tell how they struck him, said: "Why, I guess they look like scrambled eggs." But we seemed, especially in the country, to have one quality which American work had not: I mean the right and truthful use of material. In the States one's sense of decency and honesty is constantly being hurt and one's nerves jarred by shams so cleverly carried out as to deceive the eye (if not the hands, I could quite imagine) without number, but I could not suffice. There is not a single Point a memorial hall by McKim; the interior has many bronze ornaments—some are ad to the touch, others, more difficult to reach, are warm. The entrance to the large hall is through a screen of caryatid figures, ostensibly of bronze; but the discoloration of a horrid wood or plaster where they have been kicked off seems to take away any value the building may have as a memorial. The use of stucco for a statue of a master painter, and most cleverly painted, would seem not to be confined to the States hall and the school, as in the work of vulgar men such things are surely unbecomingly so great and rich a nation. In England, even in our poorest to-day, we have one great heirloom from our Gothic past, a certain love of honesty in materials, which gives even the work of a scoundrel a shame in their wrong use. If I might borrow a little American confidence to sum

up what seems to me the strongest characteristic of their race, I would say, "Knowing what they want and getting it." When the architects realise that besides vigour and content, competence and dignity, delicacy and brilliancy, the want also honesty, they will get that too, and their American architecture will come to its own.

Mr. Brewer proceeded to exhibit as lantern-slides, and to describe in detail an interesting and instructive series of photographs of recent edifices by the leading American architects, not only those built in New York, Philadelphia, Washington, Chicago, and San Francisco, but some of those in the smaller towns and villages.

Mr. H. M. Fletcher remarked that the impression left on his mind after a visit to the States was that American clients knew what they wanted, and were determined to get it from the architects they employed. There were some instructive examples of town planning employed on a large scale at Chicago under David B. Barlow and Co., at San Francisco, Cleveland, O., and Washington, the great aim being, it seemed, to produce imposing vistas. New York, the first city usually seen by English visitors, was by no means, it must be confessed, a favourable example of town planning, the difficulties being due to the awkward and confined site. There was what appeared to be a singular rivalry between cities, and this had evoked the creation of grandiose edifices, the cost being met by public-spirited inhabitants. Men who had grown rich by commerce were extraordinarily generous in supporting schemes for the betterment of the people and the provision of art galleries, libraries, and museums.

Mr. A. S. R. Mackenzie had visited the States five years ago, and found it exceedingly interesting to note the rapid developments in American architecture as viewed by Mr. Daubney ten years since, and Mr. Brewer last year. A noteworthy feature of his evolution was that the contractor was made much more honest. He endeavoured to ascertain the several effects of the influence of C. F. McKim and his partner White on the trend of thought, but as the firm employed hundreds of architects' assistants, it was not easy, although each partner in turn devoted himself to working out a problem for a new building with a selected assistant. It seemed that Mr. White was the scholar, the travelled archaeologist, and collator, while perhaps Mr. McKim imparted more dignity to the work. No one could visit the United States and mix among architects and their friends without realising that there was an enormous and widespread interest in architecture. It was pleasant to note that plans and designs were prepared to the last detail before a "bid" was invited, and when one was accepted from a contractor, the architect did not modify his work as the undertaking went up. If to him it seemed to be improved in design, he utilised his experience in the next building he carried out.

Mr. W. H. Ward had been impressed during his visit by his trip to America last summer by the immense progress that was being made in the designing of American details. He felt assured that there was great ground for hopefulness for the evolution of American architecture, and one reason which weighed with him strongly for this belief was the thorough grounding the young student was getting in European and especially French styles. Under these conditions there was no reason for doubting that a true National American style would be evolved. One thing saddened him in his outlook—the treatment of Gothic art, where it was evaded in the churches. This manifested an absence of foundational knowledge, and was, especially every case, thin and wiry. The Romano-Gothic work of the late Mr. Richardson was original, well thought out, and very interesting; but that of his successors who tried to found their work on his was simply deplorable.

Mr. J. C. M. Whitelaw having spoken, Mr. A. T. Bolton observed that Mr. Ward had pressed a coming American style; but it was significant that in all newly peopled countries the shrines were rung in quick

succession on the old phases of architecture. For himself, he did not anticipate the evolution of a national style. Mr. Brewer had put upon the screen, side by side, two telling works for comparison—the matchless and exquisitely proportioned Giralda at Seville and the adaptation of the same tower which had been reared in Maddison Gardens, New York, and all must have been struck by the faulty proportions, the bad structure, the poor details of the Transatlantic copy. That reminded him that one day he was sketching the incomparable Giralda Tower at Seville, and fell in with an American student, whom he urged to try and analyse its charm and depict its beauty. All in vain. The New Yorker turned aside impatiently, explaining, "Well, my office overlooks Maddison Square, and I guess I can see the real thing out of my window all day long."

The President, in closing the discussion, remarked he was rather surprised that more had not been heard of the works of Richardson and Hunt, both Englishmen by birth, who largely influenced for the better the architecture of America a generation ago. They had been led in the papers and the subsequent discussion into a review of the more recent, and certainly most interesting, development of that art.

In replying, Mr. Daubney said he must admit that the lively resources of American clients and the corporate results of the English observer, in a lack of subtlety, of economy in plan and in detail, and of the refinement often given by attempts to solve great problems with scanty means.

Mr. Brewer also replied, remarking that American architects seemed more keenly contracted on their work than their European brethren, and when the tension was relaxed there was often an abundance. The students were not mere hangers, but were well and thoroughly crammed. Richardson's work had a character of its own, but it had not been repeated with success by later men. The days of the blatant advertiser seemed to have gone by in the leading cities, and it was now recognised as good form to have comparatively small name-letters on sign-boards, fascias, and window-panes, or even to dispense with all signs, except an unobtrusive bronze tablet on either side of the entrance.

The new Northumberland County Council schools, which have been built at Bedlington Station to accommodate about 400 scholars at a cost of £5,000, were opened on Monday week.

Plans have just been passed by the council for the projected new buildings at Stratford-on-Avon for an electric picture-place. The architects are Messrs. Homer and Lucas, London and Oxford.

A Golf section of the Architectural Association Athletic club is being formed. Members of the Association who are interested in the game, and wish to join, are asked to send their name and handicap to the secretary, Mr. J. H. Fish, hon. sec. Golf section, 138-9, Palmerston House, Old Broad-street, E.C.

A large portion of the south or Port Wall of the Roman city of Venta Silurum (Caerwent) has collapsed. The wall was one of the finest of its kind in Great Britain. The north-east corner wall, which is 22 ft. high, is filled up with soil to within a few feet of the top, while the south side is free from top to bottom. The southern, unprotected face of the wall has fallen outwards, leaving the core and the northern face still standing. The rubble or herring-bone masonry has been exposed, and it is thought probable that this also will soon collapse.

The first section of the new railways in course of construction by the Great Western Railway Company, the Maidenhead district, as an alternative main-line route between Neath and Llanelli, has just been opened; it extends from Neath to the River Towy. The second section of the line which is to be completed during the present year, extends from the Maidenhead line over a total length of 21 miles between the junction to the Morriston branch and Langyfelach, on the Llanelli—llandovery branch of the company's South Wales system. The contractors are Messrs. Walter Scott and Middleton. They are represented on the work by Mr. Edgar K. Middleton. The contract is being carried out to the design and under the superintendence of Mr. W. V. Armstrong, engineer for new works to the Great Western Railway Company.

CURRENTE CALAMO.

In addition to Mr. John A. Brodie, the City Engineer of Liverpool, the Secretary of State for India has appointed three more experts to advise the Government of India in the laying out of the new capital at Delhi—viz., Captain George Swinton, chairman of the London County Council; Mr. Edwin L. Lutyens, F.R.I.B.A.; and Mr. H. V. Lancaster, F.R.I.B.A. The committee will assemble at Delhi about the middle of April, and act under the instructions of the Government of India. The work is expected to occupy four or five months. Captain Swinton, who has dealt in several published papers with the problems of London traffic, had experience in India, having acted as an extra aide-de-camp to Lord Lansdowne when Viceroy of India. The qualifications of the two architects chosen are of the highest, and it will gratify every member of their profession that they are to serve. Each has achieved distinction of a very high order indeed, and the work of both is stamped by real genius.

Heartily congratulations have followed the King's bestowal of knighthood last Saturday on Sir Maurice Fitzmaurice, the chief engineer of the London County Council. Sir Maurice Fitzmaurice, who designed the engineering work for the Embankment wall of the new County Hall, has been chief engineer to the London County Council since 1901. He was born in 1851, and was educated at Trinity College, Dublin. Among the works with which he has been associated in London as engineer are the Rotherhithe Tunnel, the new Vauxhall Bridge, Kingsway and the tramway subway, and the electric tramway service. He was also engaged on the construction of the Forth Bridge, the Blackwall Tunnel, and the Nile reservoir-dam at Assuan, for which he received the Order of the Medjidieh. In 1902 he was created C.M.G.

The King's presence at the London County Council foundation-stone-laying last Saturday will undoubtedly, as the *Times* remarks in a leader last Monday, help to draw public attention, especially of Londoners, to the desirability of securing the services of able architects for important buildings, and protecting them from the hampering of their efforts to do their best by official interference. Nothing can have been fairer or more judicious than the action of the London County Council with regard to the erection of their new hall. They have secured a fine building for the ratepayers' money, and most fortunately they have been able to associate with the chosen architect the experience and co-operation of one of the ablest superintending architects any municipal body has ever possessed, and the skill of the no less able civil engineer in his own department, so promptly recognised by the King last Saturday.

One may well hope, therefore, that the good fortune of the London County Council will have its effect on other bodies and on public opinion. Perhaps it is hardly fair to say, as the *Times* does, that "if anyone wishes to see the best of our modern architecture he must look for it in private houses, in restaurants, in flats, in theatres, in offices—in fact, anywhere rather than in those public buildings where he would expect to

find it." But it is, unfortunately, true that there is too often "in England an almost complete estrangement between the mass of our best architects and most public and official bodies. To them an architect is not an artist at all, but a man who makes plans for buildings, which he must alter at the will of any official person, and who supplies as much irrelevant ornament to these plans as the authorities choose to afford." The result, time after time, as at the Houses of Parliament, the Law Courts, and elsewhere, has been stupid and vexatious interference which has spoiled the buildings or given their erection to second-rate men. It is well this should be emphasised just now, when, as the *Times* says, "we have better chances of beautifying our cities than we have had at any time since the death of Wren; but as a nation we throw them away with both hands."

One can only regret that the rejection of the London County Council Lambeth Bridge Bill yesterday week by 180 to 115 votes in the House of Commons marks a mistake which was very inadequately defended by Lord A. Thynne, who said the only object of the bridge was to provide a relief bridge for Westminster and Vauxhall; but it was designed, in width and every other respect, to carry traffic, and would be wide enough to carry a tramway-line should this be ultimately considered necessary. That was a very poor justification indeed, and we are not sorry that Mr. Burns's demand that if Parliament sanctioned the proposal to make the bridge only 48ft. wide, the Council would put in abutments wide enough to carry a bridge similar to Westminster or Vauxhall bridges, which were 84ft. and 80ft. in width respectively, was held insufficient, and the Bill as a whole rejected.

As in some minds there seems to prevail an impression—quite unfounded, as readers may have gathered from our own previous comments—that the appointment of a committee by the Council of the R.I.B.A. to consider the whole question of Registration marked the abandonment of the policy of the Institute as settled by the resolutions of March 4, 1907, and the postponement of further consideration of the incorporation of the Society of Architects, it is as well to give the following definite statement of the chairman, Mr. Leonard Stokes, at the business meeting of March 4 last, which we take from the last issue of the *Journal*:—

THE QUESTION OF REGISTRATION.

Mr. Maurice B. Adams (F) referred to the announcement, in the last issue of the *Journal*, that the Council had appointed a committee to consider the whole question of Registration, and asked the following question, to which he had given the reply:— "Whether it is the policy of the Council to postpone further consideration on the part of members of the Institute as to incorporating the Society of Architects till after the committee appointed to take evidence on the question of Registration has made its report; and whether the appointment of this committee to take evidence as to Registration implies that the Council considers the matter to be still an open question, seeing that the Institute as a body has already committed itself to the policy of promoting a Bill before Parliament for the Statutory Enrolment of Practising Architects?"

The President replied: The Council do not consider that the question of Registration is still an open question. We consider that the Institute and the Society are bound by the resolutions passed on March 4, 1907, to the Council's proposal that, of January 8, these having been referred back for further consideration, the Council have appointed a strong committee to consider the matter and report to them on the subject. The Council will in due course report to the general body.

Readers who remember his many contributions to archaeological and other societies

which have appeared in our past volumes must have been disgusted with the London Yellow dailies and their rush for "copy" to Chelsea this week to Dr. John S. Phéné's home, as soon as the breath was out of his body, last Saturday. Few of us, we suppose, live to ninety nowadays without accumulating some sad memories; or the certainty before us, if our names are known ever so little beyond our own circle, that the "many-headed beast" is waiting to interview our jobbing gardener or other domestics for tidbits about our eccentricities, and piquant descriptions of our personal habits and appearance. More rubbish has probably seldom been strung together than has been invented or exaggerated about Dr. Phéné, whose activities were many, though mainly archaeological, and in the pursuit of which his researches in Italy, Greece, Asia Minor, India, and Western Europe had been most persistent. Our impression of him always was that he would spare neither time nor money to substantiate a fact or support a theory. Among his many papers we remember being struck with one we gave in our issue of May 17, 1878, in which the labour was recorded of many months spent exploring the islands off the Eritrean coast, in order to arrive at the location of the mystic Avalon. His house at Chelsea was, it is said, an embodiment of the ancient home of his family, the Chateau de Savenay, on the Loire. We have never seen the interior ourselves, but if an account we remember reading some five years since of a fête given in the grounds to the members of the Clothworkers' Company, of which he was then the Master, was reliable, it must have contained one of the most remarkable collections ever gathered together. Dr. Phéné was a life Fellow of the R.I.B.A. He read frequent papers before that body, the Architectural Association, and many archaeological societies. He was buried at Kensworth, Beds., on Wednesday. His wife, Margaret Forsyth, whom he married in the early fifties, died at Paris in the seventies. Their parting, due to incompatibility of temperament, was lamented by the friends of both. The legends about "death on the bridal morn," etc., are, of course, the merest moonshine.

The Theatres Committee of the London County Council has promised Sir George Alexander to report generally upon the question of municipal and rate-aided theatres. The committee has plenty of good precedents before it which would enable it to vote money on Sir George's scheme. On the Continent, of course, the principle of subvention of opera-houses is extensively recognised, and not only are there opera-houses in Paris, Berlin, Vienna, and Brussels maintained by the State or out of the Sovereign's privy purse, but in a large number of cities the municipalities vote grants to opera-houses to insure the production of the best music at reasonable prices. In Lyons, Bordeaux, and Toulouse the municipality votes in each case £9,000 a year. In Frankfurt and Breslau the town councils pay £10,000 a year, whilst Geneva not only erected an opera-house at a cost of £150,000, but contributes £7,500 to keep it going. London alone is strangely behind; but the time will come when not merely the London County Council, but every Metropolitan borough, will have its theatre, in spite of the Egotist opposition of the sort that met our own advocacy of the idea, several years since, on the St. Pancras Borough Council, fortified though it was by

urged against "Why Not's" plan; but it has so little estimated the elementary simplicity essentially appropriate to a project of this kind as to make his church far too ambitious. At the same time the author has shown a sense of picturesqueness and breadth of handling. The south elevation is pleasing, and elevationally the tower looks right; but the bell-turret and the sort of quasi-transverse hampers up the outline of the church and conflicts with the tower. No second entrance was really needed, and the small sacristy, away from the vestry, is not wanted, neither is the return passage for so small a church. The conveniences, tacked on to the west side of the church, are very poorly placed, and the women having to perambulate round the men's place hardly seems a nice arrangement. The vestry and organ contrivance is similar to "Liver's" plan, but not so convenient, and the south aisle, though it shortens the nave, adds to the cost by the expense of addition. The cloister is termed "open." If so, what is the use of the radiators? How are we to get to the vestry door while the steps down to the heating-chamber come right in the way? There would not be available head room above the basement steps, so far as the drawings show. The little organ would not need a crypt to accommodate its bellows. "Five Towns" and others would do well to compare their arrangement of the subject on the sheet with "Liver's" setting out. He has room and to spare, instead of crowding up every atom of the papers, as "Five Towns" has managed to do, to the detriment of all good effect.

"Mack" makes his church very square on plan, by the employment of two aisles. The clergy seats are allotted to the chancel, and the organist would be seated away from the choir, in the passage-way, rather awkwardly. The lavatory adjunct is not economically managed, and the vestry is not so well placed in regard to the sanctuary as in the last plan, and space is not economised in the body of the church. The tower is nicely set out, and we are in favour of the elevation of the church or commend the south gable, with the fussy little bell-turret perking up so unimpressively.

"Mick" sends a sturdy sort of building, adapted to its environment, though, as a matter of taste, the battered walls of his square tower do not appeal to our judgment, and the proportions are not happy either. He marks the passage approach to the men and women's conveniences is not quite suitable. The font is rather hampered by the adjacent pews, and the side passage for communicants is a trifle awkward. "Mick" has, however, endeavoured to give a little "go" to his elevations by the grouping of their parts, and his bell-turret, strongly flanking the east gable, is commendable. The very wide spay of his main-entrance door-jambs and arch detracts from its scale and pleasing contour. "Mick" before was known as "Theos." This change of motto must not occur again; it only leads to mistakes and loss of drawings.

"Black Diamond" (device) has so many good points that his want of some more precise acquaintance with the details of church contrivance is the more to be regretted. He handles his design broadly, and works it out well; in fact, he takes two sheets and fills them with work. His tower and cloister are among the best, and, by assuming the fall of the land to exceed what we intimated, he places the very ample pair of vestries in a crypt, with an entrance-door below the chancel east window. The side aisles of the nave are narrow passages, contrived quite properly, and the section shows ingenuity and skill. The men and women's conveniences, given by side, are not likely to be a success, and are too exposed to casual inquisitiveness, if not worse. "Black Diamond" must fail in this competition because his chancel arrangements are utterly at variance with the usages of liturgical celebrations. He shows the communicants' rail at the entrance of the choir, between the pulpit and the lectern. The celebrant would have to traverse the east end of the chancel every time he administered the elements to two kinds. The altar-race is badly set out,

and there are no stalls and prayer-desks for the clergy. The big piers of the nave would obscure many seated behind them from seeing and hearing properly. The organ-chamber is as bad as the so-called third story, and the organ side of the choir. The w.c.'s opening directly out of the sacristies in the basement would be offensive.

"If" (hitherto known as "Nil Desperandum") has not adhered to the scale stated, and his plan is too ambitious, showing also what looks like a vaulted-way for the return of communicants, put behind the organ. Having so much room to waste on his sheet, he fills it up with an enormous title. The sloping buttresses to his church spoil its appearance. The tower has a conical roof, and there is an aisle on the north side. Two vestries are provided. The cloister from the tower to the nave is groined. A mountain effect is given to the perspective, and this view shows how very broken up in outline the church would be. The belfry opening is too small to let the chimera be heard properly.

"Benvenuto" is unequal. The tower affects a scale which must be intended to belong to a really big church, and yet the section of the nave is inconsequential, suggesting a poorly-handled little institutional chapel, with a pretentious hammer-beamed roof, starting off quite low, just above the pew-tops. The curved triangular opening for the sanctus bell in the southern gable of the sanctuary, is vaguely in shape, and the external door to this bell-chamber below shows that the author has no proper idea as to the use intended. A w.c. flanks the sanctuary on the north side, to make the balance true on plan, and no ventilated lobby occurs between it and the clergy vestry. The organ is not well accommodated, and the pulpit is mixed up with the choir seats. The public conveniences are got at from the tower porch by angle-set stairs, making the first floor of the church is by no means so questionable an arrangement, however, as the description suggests.

"Veritas" draws in an inky manner. His squat tower appears as if it had been shorn of its upper stage, and the big square window to light the "waiting-room" has the effect of having been a later insertion, regardless of the earlier style recessed and arched treatment above it. The open cloister is deserving of the same objections which we took in our notice of "Why Not's" plan. The return-way south of the chancel is 6 ft. wide—just as big as the space provided for the organ, with the keyboard on the east side of the instrument, turning the organist's back to the altar. A store cupboard is put in the Epistle side of the sanctuary, and a vestments stack-room is situate as a companion to it on the Gospel side.

"Sirra" makes his sanctus-bell turret over the south wall, and makes an entrance to the church below it. This door may be needless, but the idea is a good one. The drawings fail to do the scheme justice. It is a commonplace scheme, illustrating little knowledge of church architecture or its practical requirements: witness the wasteful organ-chamber and vestry, entered immediately out of the churchyard, and only a cupboard to divide it off from the church. "Cheer Up" sends a tower, which has a main elevation strangely suggesting "two eyes, a nose, and a mouth," the latter being the straight-arched entrance portal so oddly and wonderfully made, with the arch-stones indicative of teeth, and a pierced parapet on one side of the lean-to, to carry a lamp. The cloister connecting the tower with the nave extends east and west, and, like the waiting-room porch, it is groined. A ladies' room is tacked on to the west front of the church; but we are spared a drawing showing how this comes in elevation. The altar-race is called the "sacristy," which is a trifle confusing, and the sanctus bell-cote is stuck on to the angle of the east-end wall, over a staircase which leads to a door some few feet below the church-floor level, opening into the churchyard on the east end. The font is called in after the fashion of a very big new. The "gents' lavatory" is upstairs, and is

got at from the entrance portal, and continued over the cloister leading to the church.

"Appin" has a square tower, somewhat too big. This plan for the church is excessively poor. The sheet of paper exceeds the specified dimensions. "Briton" makes the same error. He puts a wooden gabled open porch to the tower, and draws in his centre-lines in a very chic way. He puts a flat-roofed apse to the chancel, which, again, is not very attractive. There is a morning chapel, such as we did not specify. The church seats 372, so "Briton" is much too generous, and also uncertain.

"Diogenes" sends a moderately suitable plan, which in detail is indifferently poor. The tower, if strong-looking, is lacking in interest, and the church is not calculated to raise our good thoughts or rouse enthusiasm. The paper used is much too ample in size.

"Wigg" makes the same mistake, and omits to employ his scale. He sends us a view. The caretaker is taken care of by being placed close to the clergy vestry, which suffers from the w.c. being sliced out of it. The tower has a dwarf spire. "Broad Oak" puts his organ up by the north side of the sanctuary, with a w.c. tucked in behind the bellows. The font is stuck up in the corner at the west end of the nave aisle. These aisles are merely passages, and out of the southern one there is a semi-octagonal porch with a turret spiring up over for the sanctus-bell. "X'er-do-well" has certainly not done much to redeem his position this time. The w.c.'s for the two sexes open immediately out of the short connecting corridor, and are side by side near the main porch, under the tower. This is very handy, no doubt, but much too prominently placed to be pleasant.

The tower, on old lines, is the most capable part of this proposal, and if the building lacks inspiration it would not, perhaps, be out of place amongst the hills of Wales. "Scot" puts his tower on the north side, and he links in every individual stone, which must have been a tiring process, not worth all the trouble expended on it. The plan is wasteful, and the Episcopal Church has nothing to spare on waste in Wales just now. "Nipper" and "Burgh Wallis" are about equal in merit, but neither competitor is strong in church design or its needs. "Country Yokel" is far from being an eminently efficient draughtsman, and we regret not to be able to place him higher. He has much to learn before he will be able to design a good church, if we are to take this as a criterion of his abilities at present.

Owing to extreme pressure on our space this week, we are reluctantly obliged, at the last moment, to leave over till next week the block illustrating the second premiated design in the BUILDING NEWS Designing Club Competition, and also other important articles.

THE BUILDING TRADES EXHIBITION, RUSHOLME, MANCHESTER.

A FEW EXHIBITS WORTH NOTING

The Building Trades Exhibition at Rusholme, Manchester, organised by Mr. H. G. Montgomery, who has successfully managed the exhibitions at Olympia, was opened on Saturday last, and will remain open until the 23rd inst.

Those of our readers who have visited the London exhibitions will find little of novelty; but those firms who have exhibits have made a good show, the building being particularly adaptable for an exhibition of this kind. We have only space for a brief review of a few, amongst whom are Messrs. Chubb and Son's Lock and Safe Co., Ltd., 128, Queen Victoria Street, E.C., who exhibit various examples of their well-known specialities and latest developments in the construction of security appliances. A group of four strong-room doors is shown of various qualities, also a new type of party-wall door, made of reinforced concrete covered with steel plates, according to a special construction for which the makers have obtained provisional protection for a patent. Chubb's well-known light steel adjustable shelving is shown; also safes of various qualities, including one of

Our Illustrations.

DESIGN FOR THE CATHEDRAL AT WESTMINSTER.

PREPARED FOR CARDINAL VAUGHAN BY
MR. ARCHIBALD DUNN, ARCHITECT.

Some time ago (April 6, 1906) we were able to give the interior view of this design (together with a plan), which was exhibited in the Royal Academy. We are now able to give a double-page plate (from a drawing by

A MOUNTAIN CHURCH IN WALES.
(For the assessor's award in this BUILDING NEWS Designing Club competition, see page 376.)

HOUSING AND TOWN-PLANNING POINTS.

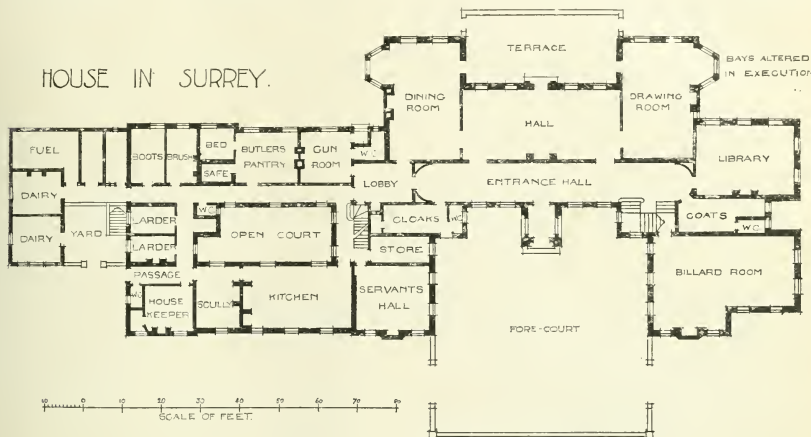
At a provincial sessional meeting of the Royal Sanitary Institute held at the School of Technology, Manchester, on Friday night, Mr. F. W. Platt, building surveyor of the Salford Corporation, read a paper on "The

Mr. Alexander, architect, of Liverpool, said that if they were to make progress, it was essential that the inhabitants of every town should at once form a society of specially qualified men to put the provision of the Act into operation.

COMPETITIONS.

MURTON.—Mr. J. J. Dobson, of Rodridge, South Wingate, has been chosen architect in a competition promoted by the Easington Rural District Council for plans of three types of miners' dwellings at

HOUSE IN SURREY.



MR. ARNOLD MITCHELL, F.R.I.B.A., Architect.

Mr. Tom Rooke, R.W.S.) of the exterior view of the same design. It is conceived in the spirit of the best period of English Gothic art. The total interior length, including narthex, is 300ft., the width across the transepts 180ft., the width of nave and sanctuary 40ft., the interior height 90ft., the height of spire 315ft. A carillon tower 170ft. high stands almost detached at the west end at the corner of Ashley-place. The estimate (£230,000) was found to exceed so much the funds at disposal that it was necessary to abandon the scheme for that reason. The accommodation provided was for 4,000 persons, and there were twenty chapels round the sanctuary and aisles. These were divided by stone screens of open tracery.

HOUSE IN SURREY, AND ORGAN AT HARROW.

This house—of which we give an exterior view of the garden-front, an interior of the corridor hall, and a ground plan—was built in brick, roofed with tiles, and the masonry in Ham Hill stone. Messrs. Hylett and Hammond, of Guildford, are the builders. Mr. Arnold Mitchell, F.R.I.B.A., is the architect.—The billiard-room organ illustrated on the same plate has been erected in a house at Harrow. It is executed in silver birch, corresponding with the panelling and floor of the room. The architect is Mr. Arnold Mitchell, F.R.I.B.A.

HOUSE AT PANGBOURNE.

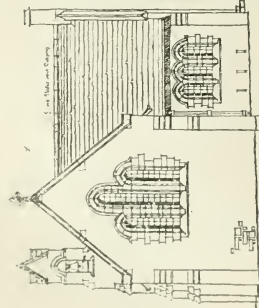
This house has been built by Messrs. John Parnell and Sons, of Rugby. The materials are brick and hand-made tiles for roof, with pressed tiles for walls to upper stories. Most of the joinery and panelling is of waincot oak. The billiard-room is of bird's-eye veneered mahogany inlaid with green shell and mother-of-pearl. Mr. Arnold Mitchell, of 17, Hanover-square, is the architect.

Application of the Housing and Town-Planning Act to the Redevelopment of Suburban Areas Now in Process of Transition." The purpose of Mr. Platt's paper was to discuss how far the provisions of the Act could be applied to suburban areas now partly built upon, with the roads formed, the character of the buildings upon such roads, and the general laying-out of such areas as are now changing by reason of external influences. He said that until the advent of electric and motor traction it was the custom of business men to live in an area generally not more than three miles distance from the centre of a town. The increase of the smoke nuisance from domestic buildings, and the unregulated laying-out of adjacent land, had caused these suburban areas to be no longer desirable, and the former residents had found that it was not less convenient to live some distance from the city. Thus it often happened that portions of these areas, with their well-planted grounds and desirable trees, were handed over to the speculative builder, who ruthlessly cut down the trees and formed the regulation uninteresting roads. His only object seemed to be to crowd as much as the local building laws would allow on a given piece of ground. Mr. Platt argued that these areas might be so planted and formed as to preserve any natural features of beauty. If this were done, emigration would be retarded, and a generation lower in the social scale, but none the less good citizens, would be encouraged to inhabit the districts. Town planning, he said, must be progressive to succeed, and if, under the application of the Act in the redevelopment of these formerly desirable areas, the amenities, convenience, and sanitary conditions of life were maintained, the Act would have solved a difficult question. Sanitary enthusiasts could do much to further the accomplishing of that desideratum.

Murton. As many as 120 architects competed. The designs submitted were exhibited at the Council Offices, Easington, from October 25 to January 27 last, during which period the council met from time to time and considered them, with the aid of Mr. William Milburn, architect, of Sunderland, acting as assessor. After eleven weeks, the council finally decided in favour of Mr. Dobson, "whose plans conformed most nearly to the conditions of the competition and to the requirements of miners' dwellings." The estimated cost of the three types is £150, £165, and £200, respectively. The architect is to undertake the whole of the work for 2½ per cent. on the actual cost. From correspondence which has reached us, we imagine dissatisfaction is locally manifested; but as one competitor who complained subsequently wired us not to publish his letter, we refrain. Any reliable information will be acceptable.

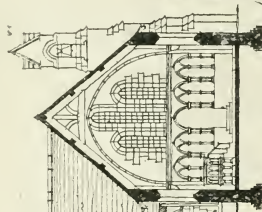
The Lord Mayor has received a letter from Sir George Reid intimating the desire of a number of Australians to perpetuate, in the City of London, the memory of the opening of the Commonwealth Parliament by the King, when Duke of York, by presenting to the Corporation a mural painting or fresco depicting that ceremony, provided a suitable position can be found for it in the Guildhall.

The committee of the forthcoming exhibition of designs for mural paintings and for the decoration of schools, etc., have now issued a final circular containing full particulars of the competitions offered to artists, and of the exhibits which it is hoped to secure. The exhibition will be opened at Crosby Hall, Chelsea, S.W., on Saturday, June 1; and a number of definite offers of wall-spaces to be decorated, and of funds to bear the expenses, have already been secured. The circulars will be sent to anyone interested in application to the Hon. Secretaries, Mural Decoration Committee, Crosby Hall, S.W.

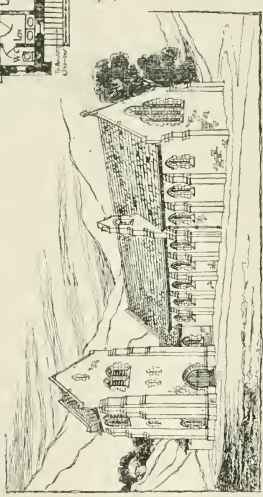


• East Elevation •

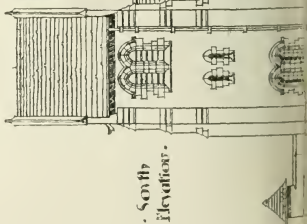
♦ B.N.D.C. ♦
 Design for
 A Mountain Church
 in Wales
 By Llewellyn Lloyd, March 1912.



• Section •

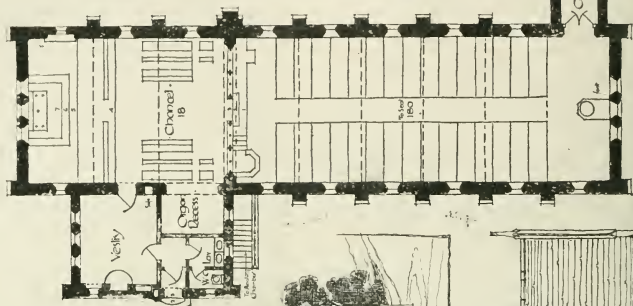


• View from South East •

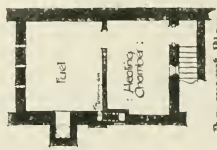


• South Elevation •

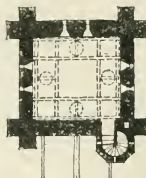
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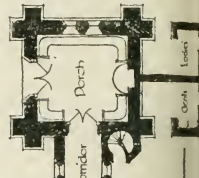
• Ground Plan •



• Basement Plan •



• Plan of Ringers' Room •



• Porch •

the flesh parts, for example, was toned down or polished, sometimes with some addition of a colour or tint. In this case the colour is not opaque, but transparent, and again makes it easier, not more difficult, to appreciate the texture of the material. I think it is a suspicion that paint is used to conceal one inferior material which is responsible for much of the prejudice against coloured sculpture.

But even after we have realised in our imagination what any work of Greek sculpture was like when it left the sculptor's workshop; when we have allowed for the conditions under which it was meant to be seen, and have eliminated in our mind not only the ravages of time, but the additions and modifications of the modern restorer, we have still to consider whether it is an original Greek work or a copy, made in all probability for the Roman market. There is an immense number of such copies in all our museums, and in many cases the masterpieces of the great sculptors of the 3rd and 4th centuries—of the age of Pheidias and Praxiteles—only survive for us in this form. The difference between a copy and an original work is always great; but it varies considerably according to the period when the copy was made, and other conditions. It may be said, in general, that a copy of Roman date, while it is more likely to aim at mechanical accuracy, is less likely to catch the subtler qualities, the spirit and character of the original; while a Greek copy or replica, whether contemporary with, or later than, the work it reproduces, is likely to give us a truer notion of these subtler qualities, even though it be less faithful in details and accessories. An excellent example is offered by the head of the Melager in the garden of the Villa Medici, as compared with the Græco-Roman version of the same in the Vatican Melager. This is a matter in which one or two actual examples are more instructive than any amount of description. As another example we may take the Agias, a contemporary replica of a statue by Lysippus, in comparison with the Apoxyomenos, probably a Græco-Roman copy of a Lysippean work. If, however, we would appreciate and understand the essential differences between ancient and modern sculpture, we must not only consider all these external and more or less accidental conditions and relations, but also the conditions under which the ancient Greek sculptor actually worked. Here, what might at first sight appear to be his restrictions and limitations were really his strength. He was bound by tradition and convention to a degree which is hard for us to realise. But, instead of allowing this convention to strangle his art, as was the case with the artists of Egypt and Mesopotamia, he made it serve as a channel to keep in a deep and vigorous stream the artistic impulse which else might have been diffused to no purpose. We find, in fact, that he repeats again and again, with what seems at first almost wearisome monotony, a limited number of fixed types. But such a repetition of types is by no means always a sign of

the early Greek artists, in a practically indistinguishable form, to represent a god in a temple—above all, Apollo—a victorious athlete, or a conventional portrait of the deceased set up over a tomb. But the type as we may see it was not merely conventionally borrowed. It was repeated again and again from the trained memory of the artist, and this trained memory, by ascertained psychological rules, retained only two aspects of the figure, the full face and the profile; but at the same time he was able to produce his figures, working freehand from memory, with an extraordinary degree of certainty and facility. He was thus able to dispense not only with a posed living model before him as he worked, but also with any full-sized model of clay or other material to guide him in his work. Small workshop models, or sketches of the figure, of course, have been used. But it was, above all, on his memory, and on memory reinforced by family and school tradition, that the sculptor depended. Again, he was able to dispense with a posed living model because he constantly had before him the living body in exercise in the gymnasium and wrestling schools that were constantly frequented by all men of the State; the custom of athletic nudity thus gave the sculptor an opportunity for study of the living and moving athletic form such as never has existed before or since, and, consequently it is above all in the nude male figure that the Greek sculptor excels; but the restriction to a few clearly-defined poses enabled him to concentrate all his attention upon the improvement in proportion and in detail and modelling; freedom of pose came later. We might easily follow the same line of development in other types—the draped female figure, for example, where the beauty and sculptural fitness of the clothes worn in ordinary life obviated the necessity for draping a posed model in unusual garments; or the flying victory, the wounded warrior, or other less obvious types, each developed on its own special lines. It was by such means as this that there was built up a series of types, a basis of naturalism that offered a holding for the idealism of the 5th century, and though this basis was modified to some extent by late realism, it was never completely lost. Even later Greek art, though it freed itself from the trammels of early convention, never substituted for it the complete anarchy we too often find in modern work. As a result it may sometimes lapse into the somewhat lifeless tradition of the Later Classical age; but at least it preserves even then much of the character of the great period of Greek art, so that it was possible for men like Lessing and Winkelmann to recognise in works like the Laocoon and the Apollo Belvedere those essential qualities of Greek sculpture for which we prefer to go to the Elgin marbles.

THE "BEAVER" PIPE-CUTTER.

The "Beaver" pipe-cutter embodies an entirely new principle in cutting-out tools, operating in the same manner as a die-stock.



weakness in art; we have only to think of the iteration of familiar types, such as the Madonna and Child, in Medieval and Renaissance painting. It is not, however, a merely mechanical repetition; for the early Greek sculptor was constantly observing Nature and striving to embody the result of his observations in his repetitions of the well-known types. We can see this most clearly if we take one only of these types, that of the nude male standing figure, and follow out its development in some detail. In its origin this type was evidently borrowed from the common Egyptian type; but it was used by

It is self-feeding, and therefore obviates the necessity of screwing the cutters on to the pipe; it is self-centring, and cannot make crooked cuts. No burr is left, either on the inside or outside of the pipe, so that reaming or filing is unnecessary. By the use of this tool, pipe-screwing is facilitated, more accurate threads can be cut, and the life of the dies increased.

The "Beaver" pipe-cutter will pay for itself in a fortnight. To prove this, it will be sent on a week's trial free by the makers, the National Radiator Company, Ltd., 439 and 441, Oxford-street, London, W.

OBITUARY.

Mr. Duncan McNaughtan, F.R.I.B.A., of Glasgow, has died, at the age of sixty-seven years. Mr. McNaughtan served his articles with the late Mr. Spence, afterwards assisting for a time in the office of Messrs. Campbell Douglas and J. J. Stevenson, Glasgow. Coming to England, for a year he followed a definite course of architectural study, attending the art classes at Kensington, and visiting the principal cathedral towns. He started on his own account in Glasgow in 1871. His practice included public and municipal buildings, churches, halls, schools, country mansions, and villas, extensive warehouses and shops. Among his principal buildings were the Mayhill Town Hall; the Baltic Chambers, Wellington-street, Glasgow; Lord Kelvin's warehouse; county and police buildings, Dumbarton; and schools for the Glasgow, Maryhill, New Kilpatrick, and Rutherglen School Boards.

M. Fernand de Dartin, of Paris, whose death, in his seventy-fifth year, was recently announced at the last meeting, was elected a corresponding member of the Royal Institute of British Architects in 1892. He was a student of the Ecole Polytechnique, and passed from there into the service of the Ponts et Chaussées, of which later on he became Inspecteur-Général. He succeeded M. Léonard Besnoud, county and police buildings, Dumbarton; and schools for the Glasgow, Maryhill, New Kilpatrick, and Rutherglen School Boards.

The Petersfield Urban District Council have instructed Mr. Harry W. Taylor, A.M.I.C.E. (Messrs. Taylor and Wallin), Newcastle-upon-Tyne and Birmingham, to report upon improvements of the existing main sewerage of the town.

On retirement from the staff of the Metropolitan Water Board on pension, Mr. Ernest Collins, the district engineer of the New River district, and previously for many years one of the chief engineers of the New River Company, has been praised by his old colleagues with a silver sash as a mark of their regard.

Sir J. Wolfe Barry has presented the Chief Commissioner of Works with copies of seven water-colour drawings by George Moore, depicting various aspects of St. Stephen's Hall and Chapel before the Houses of Parliament were burnt down by the fire of 1834. The drawings hang in a lobby in St. Stephen's Hall, an appropriate place.

At the laying of the foundation-stone of the new County Hall for London, the King was presented by Mr. Ralph Knott, the architect, with a silver trowel, specially made by students of the Council's Central School of Arts and Crafts. His Majesty afterwards conferred knighthoods on the Chairman of the Council, Mr. Edward White, and his chief engineer, Mr. Maurice Fitzmaurice, C.M.G.

It was reported to the London County Council on Tuesday, that on April 1, 1901, the portions of the Highgate-Hill tramways which are situated in the borough of Hornsey have been sold to the Middlesex County Council at an agreed-on price of £6,375 10s. They will still be worked by the L.C.C. at a yearly rent, on a thirty years' lease of £357 3s. 3d. It was also reported that the reconstruction of the bridge near Clapham Junction on the Wandsworth-road to East-bell route, carrying St. John's Mill over the lines of the Brighton and South Western Railway Companies, had been completed at a net cost of £3,417 10s.

The chairman of the Calcutta Improvement Trust invites applications for the permanent positions of chief engineer on a salary of Rs.2,000 per mensem, rising to Rs.2,500, and a land valuer on a salary of Rs.1,500, rising to Rs.1,500. The principal duties of the land valuer will be to value properties which the trust proposes to acquire, and to defend the value adopted by the trust in all subsequent proceedings; the duties of the chief engineer will be to frame and execute improvement schemes, whereby new thoroughfares will be driven through the congested quarters of Calcutta and the laying out of new suburbs. Applications must be sent in by April 15 next, addressed to Mr. C. H. Bompas, 5, Clive-street, Calcutta.

PROFESSIONAL AND TRADE SOCIETIES.

ART IN THE HOME.—At a meeting of the associate section of the Edinburgh Architectural Association, held at 117, George-street, on the 6th inst., Mr. W. J. Walker took the chair, a lecture was given by Mr. Andrew Edrie, College of Art, on "Comparisons of Styles in English Interiors." The lecturer said there was a great need in the present day to foster and encourage a love for the higher arts. A century or two ago the people took a greater interest in the furniture and decoration of their homes than they did now. If a return were made to that condition of matter it would be better for the craftsmen in every way.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—"Architects of the Stuart Period" was the title of a lecture delivered to the members of the Birmingham Architectural Association at the Exchange Buildings on Friday night, by Mr. Merwin McCurtney, the architect to the Dean and Chapter of St. Paul's Cathedral. The lecturer showed a large number of lantern views of buildings designed by Inigo Jones, Christopher Wren, Webb, and lesser lights of the period, and added comments on each picture.

THE BIRMINGHAM CANALS.—Mr. E. A. Cross, B.Sc., read "Some Notes on the Birmingham Canals and Their Water Supply" to the students of the Birmingham section of the Institute of Civil Engineers at the University, Edmund-street, on Friday night. Mr. H. E. Stilgoe, the city surveyor, presided. The lecturer gave a broad outline of the general arrangement and disposition of the various works. The canals, he explained, were confined to a tract of land of about 180 square miles in extent. The total annual traffic was about 8,000,000 tons, or about two-thirds of the total traffic on all inland navigations of the country, of which traffic one half was coal alone.

DEVON AND EXETER ARCHITECTURAL SOCIETY. The annual meeting of the Society, which embraces the counties of Devon and Cornwall, and allied with the Royal Institute of British Architects, was held on Saturday last at the Half Moon Hotel, Exeter, the president, Mr. James Jerman, F.R.I.B.A., of Exeter, being in the chair, and among those present were Messrs. J. M. Pinn, J. Crocker, J. A. Lucas, S. Daniell, B. H. Palmer, T. A. Andrews, L. T. O. Rilling, A. Stevens, A. N. Tucker, W. E. Cuth-Adams, R. H. Arthur, H. Watts, C. H. I. Vere, E. W. S. Bailey, Plymouth, and Allan J. Pinn, hon. secretary. The annual report and balance-sheet were presented by the hon. secretary and the hon. treasurer. The retiring president, Mr. James Jerman, then delivered his address. He said "I may, we hope, be possible, in time, and in conjunction with the other allied societies, to issue every member a journal or report of our proceedings, say quarterly, so that even the most busy and placed member of the society may be kept in touch with matters affecting the profession. Probably the Royal Institute may see its way to consider the desirability of promoting the issue of such a publication for circulation through the allied societies on some general basis, and adapted to each locality. It may be said that the R.I.B.A. Transactions, issued for largely during the last century, include all matters of professional interest. This, however, is not the case, and does not provide a sufficient vehicle of inter-communication to enable the many numerous allied societies to fully publish their doings and set forth their aspirations. There is one matter in the report of more than ordinary interest. I refer to the part taken by some members of our society, and whom I feel we are much indebted to, in securing the committee of the Exeter City and to respect the B.I.A. Transactions. During the past year a marked success has been made by the Royal Institute, in coming to terms with the Society of Architects of the subject of recognition, and securing the right to Registration. The work

has been one of great difficulty, and matters have proceeded as far as the consideration of the amendment of the Royal Charter of the Institute to enable this desirable movement to be forwarded. One hopes that the present deadlock may be got over when the concessive spirit shown on both sides is generously regarded. Many important matters are under the consideration of the parliament of the profession sitting in Conduit-street, and one of great concern to architects is the revision of the present scale of charges, which has been in operation for such a long period. The altered condition of circumstances, and the practice in the counties, makes the revision not only desirable, but necessary. An official scale must have great weight with the general public, and should there be attached thereto, as is done in some countries, a code of professional etiquette, the result would not only be mutual, but an intense good in raising the tone of the members towards one another, as well as with the public employing architects. Such an official pronouncement will be of immense interest to client and architect alike in disposing of misunderstandings and clearly stating the position and duties of architects. The important question of copyright has also received attention at the hands of the Institute. The satisfactory position and recognition of the examinations as now arranged by the Institute is a subject for congratulation, and puts the professional states on an altogether higher plane. The recognition of architecture as a part of the curriculum at many of our universities, by the granting of degrees, has strongly induced our students to take advantage of the splendid courses of study now provided at the University of London, University of Liverpool, the Architectural Association, and other institutions. Lastly, the students of our society, preparatory to proceeding to the larger academic centres, can take advantage of the training supplied at our University College and the art department therein. Whilst referring to the subject of education, I am tempted to say a word or two on the higher and after-culture, so important to the uplifting of a learned profession. One deplores the falling-off of the acquisition of archaeological knowledge and interest amongst younger architects. The great impulse given to the study of our ancient buildings, more especially churches, during the wave of church-restoration during the latter half of the last century acted in the most impelling manner in producing amongst architects many scholarly exponents of the history of architecture throughout the country. The decline of this wave of restoration, and the revived appreciation for Classic and Renaissance traditions, had decreased the flow of study, both amongst architects and the clergy, who had done so much in the past in instilling a love for the study of the beautiful buildings under their care. It may be hoped, however, that the newer interest may widen the whole sphere of art and produce a more enthusiastic exponent of historical study of this, our elder art. For many years there has been a fully established school at Athens for the study of Greek architecture on the spot, to supplement the preparation afforded by the schools of architecture in our own country. The great value of such study cannot be too strongly impressed on the student who desires to proceed in academic lines and draw inspiration from the highest type of Classic work. These of us who were privileged, during our student visit to Rome, to see the British School of Architecture and Archaeology established there, felt that this school in Classic Rome completed a scheme for study on the lines of that already established by the French, German, and American architects, to whom their respective schools had been of an estimable benefit in advancing the genuine study of architecture. The next suggestion is to be held two years hence in St. Petersburg, and the enthusiasm of the Russian architects, in their cordial desire to get the conference with them in January of the chosen year was very inspiring. Returning once

more to the subject of the society and its operations, the time appears to be at hand when more work will be expected of the allied societies, and more responsibilities thrown on them by the Institute. The approval of applicants for admission to the various ranks of the Institute, especially that of the newly created class of Licentiates, will require anxious and careful discrimination on the part of our Council, and it should be insisted that all local candidates should first be enrolled in the ranks of the allied society, for obvious reasons. With the greater interest in, and the increasing knowledge of, architecture on the part of the public, we may legitimately say that the prospects of our profession were never brighter or better. This involves on our parts, both collectively and individually, a strenuous desire to uphold the best traditions of the profession. A cordial vote of thanks was made to Mr. B. P. Shires, the president for his address, and also for the able manner in which he had discharged the duties of his office during the past year. The meeting then proceeded to elect the officers for the ensuing year as follows:—Mr. E. Cuth-Adams, M.S.A. (Plymouth), president; Mr. J. A. Lucas, A.R.I.B.A. (Exeter), vice-president; Messrs. J. M. Pinn, L. F. Toner, T. A. Andrews (Exeter), R. H. Arthur (Plymouth), and B. P. Shires, to the president for their address, as well as those remaining in office—viz., H. L. Thornely, F.R.I.B.A. (Plymouth), and the two past-presidents, Messrs. W. H. May, M.S.A. (Plymouth), and James Jerman, F.R.I.B.A. (Exeter); Mr. S. Dobell, hon. treasurer; and Mr. Allan J. Pinn, A.R.I.B.A., hon. secretary.

GLASGOW INSTITUTE OF ARCHITECTS. The annual general meeting was held on March 6, Mr. J. B. Wilson, the president, in the chair. Mr. C. J. MacLean, the secretary, submitted the forty-fourth annual report. It stated that fourteen new members were admitted as Fellows during the year, and that sixteen new Associate members and three new student members were enrolled. The membership of the Institute now stood as follows:—115 Fellows, 75 Associates, 32 lay, and 82 student members, giving a total of 204. During the past year the council was actively engaged in formulating the scheme for the better regulation of competitions which has now been adopted by the Institute, and in terms of the new articles of Association the following resolution was passed by the Council and approved of at a general meeting of Fellows and Associate members, viz.: "Any Fellow or Associate member shall be considered to have been guilty of professional misconduct in terms of the memorandum and articles of association of the Institute, and shall be liable to the penalties therein stated, if it be found by the Council either (1) that he has knowingly submitted, directly or indirectly, a design in any competition which has previously been the subject of a notice by the Council or by the committee on public architecture and competitions prohibiting members of the Institute from taking part in the same; or (2) that he has knowingly solicited the promoters for permission to submit a design in a limited competition after the list has been closed." The scheme which was put before the Institute after long and careful consideration by the Council is, the report stated, similar to that of the Royal Institute, by which it has been approved. The course of action shall be considered by several of the allied societies in the respective districts, and the Council is in communication with all those in Scotland toward securing similar procedure on their part where not already in force. The Council hopes, under the powers now granted to it, to be able to deal more effectively with the apparently increasing number of unsatisfactory competitions. The council has also been considering the proposition that the attention of the municipal buildings should be carried out by the city engineer's department, and a letter protesting against this course of action was forwarded to the corporation. It was noted with satisfaction that the corporation

remitted the proposal back to the committee for reconsideration. The following were the winners of the Institute prizes in the Glasgow School of Architecture, viz.: R. Norman McKellar, for design, £3 3s.; William Gourlay, for freehand drawing, £2 2s.; and John M. Venters, for measured work, £2 2s. The ninth triennial competition for the Alexander Thomson Memorial Studentship was held in February, the subject being a design for a bridge with a span of 100 ft. The number of competitors was disappointing, only three sets of drawings being received. The studentship, value £50, was awarded to Mr. James Bennett, Ayr; but, in view of the small number of competitors and the fact that the quality of the work was not up to the standard which the trustees desired, they decided not to award the second prize in this competition. The chairman proposed the adoption of the motion. He referred to the recently instituted Licentiate section of the Royal Institute of British Architects, and said he was pleased to say that the response from their province had been very gratifying, and that, from what he personally saw during his term upon the Royal Institute Council, not only in numbers had the Glasgow province been equal to any section of the kingdom, but in quality also. He referred also to the large and rapidly increasing amount of municipal building work emanating from the city engineer's office. At present the art galleries, the rebuilding of the historic Tontine, and the extension of the municipal buildings—work all calling for high architectural skill—was being, and proposed to be, designed and controlled from an "engineers' department." Not only as ratepayers, in the city's interest, but as architects, proud of the architectural reputation of their city, they desired to show that the skill of the past had not departed, and that their public buildings should be worthy of them and of the city to which they were proud to belong. Referring to the new regulations for competitions, he said these had been adopted by the Institute and homologated by the Royal Institute of British Architects, and he trusted such public bodies, committees, or individuals who were proposing competitions would recognize that their desire was not to be antagonistic, but helpful. Mr. Alexander N. Peterson seconded the report and financial statement, which were adopted. The council for the ensuing year were elected as follows:—Messrs. John B. Wilson, John Watson, J. K. Hunter, Alexander N. Peterson, J. G. Rowan, John Fairweather, Charles R. Mackintosh, Robert Wemyss, James Lechhead, James M. Monro, George A. Paterson, Alexander McGibbon, Ninian Macwhannell, James Lindsay, James H. Craigie, William B. White, Alan G. MacNaughtan, and Alexander Wright. The retiring president was heartily thanked for his services in promoting the interests of the Institute.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general meeting of the society was held on March 7 at the Leeds Institute, the president, Mr. Sydney D. Kitson, M.A., F.R.I.B.A., in the chair. A very interesting lecture on "The Scottish Renaissance Architecture" was given by Mr. Laurence Weaver. A series of slides showing plans of houses and castles illustrated the fact that the towers formed their keynote, unlike the English plan, which developed from the hall. It was pointed out that the Scottish Renaissance was entirely based on French influence, owing to the political connections between the two countries, whereas in England the influence of Italy and the Netherlands was general. The Scottish Renaissance was much later than the English, and the tenacity of the old Baronial style is remarkable. Many fine slides were shown illustrating picturesque exterior and gardens. Illustrations of interiors included many fine plaster ceilings and painted ceilings, fireplaces, staircases, and screens. A vote of thanks was passed on the motion of Mr. G. F. Brown, and seconded by Mr. J. Smith Findlay.

NORTHERN ARCHITECTURAL ASSOCIATION.—The fifth meeting of the session of the Northern Architectural Association was held last night at 6, Higham-place, Newcastle. Mr. H. C. Charlewood, president, occupied the chair. The assessors' awards in connection with the students' prize competitions were announced as follows:—Measured drawings (age limit 25 years): W. Holden, London, £2 2s. Measured drawings (age limit 21 years): H. St. Harrison, Newcastle, £2 2s. Architectural sketches (age limit 25 years): S. W. Milburn, Sunderland, £2 2s. Architectural sketches (age limit 21 years): H. St. Harrison, Newcastle. Travelling studentship (medal and 10 guineas): Albert Lowes, Newcastle; second, S. W. Milburn, £2 2s. Designs for pavilion in an Italian garden: K. Glass, Newcastle, £2 2s.; K. Glover, Shotley Bridge, £1 1s. The subsequent proceedings were of a social character.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.—Mr. Edwin T. Hall (F.R.S.) delivered a paper on "The Museums and Picture Galleries," at the General Meeting of the Royal Institute, fixed for April 1. The illustrations will include a fine collection of slides specially prepared for the paper. Mr. Hall's paper is in substitution of that on "Modern Methods of Construction," which Mr. Dunn is unable to read.—The discussion of the papers on "The Newer Responsibilities of Architecture," adjourned from the meeting of Dec. 18 last, will be resumed at an extra general (ordinary) meeting of the Institute to be held on Monday, April 15, when a further paper on the subject will be read by Mr. A. Saxon Snell, F.R.I.B.A.

SMOKE ABATEMENT CONFERENCE.—Particulars have now been issued of the arrangements for the conferences of delegates of municipal authorities and other bodies to be held at the Royal Agricultural Hall in connection with the International Smoke Abatement Exhibition. The conferences will take place on the 26th, 27th, and 28th inst., the respective chairmen being Sir William Ramsay, F.R.S. (President, British Association), Sir William Richmond, R.A., and Lord Justice Fletcher Moulton. The conferences are divided into three sections, to consider:—(a) Smoke pollution and its effects; (b) Smoke abatement; and (c) Law and Legislation, among the papers to be considered are those on "The Action of Coal Smoke on Building Stones and Mural Paintings" (Sir Arthur Church, F.R.S.); "The Effects of Town Air on Metals" (Dr. S. Rideal); "The Economic Aspect of Smoke Abatement" (Dr. R. Lessing); "Influence of Smoke on Pigments" (Mr. Noel Heaton); "Sunshine Records" (Mr. R. G. Kempfert, Superintendent Forecast Division of the Meteorological Office); "Kew Gardens and Smoke" (Mr. W. J. Bean, Assistant Curator, Kew Gardens); "Should the Domestic Smoke Nuisance be any Longer Tolerated?" (Bailie W. Smith, Glasgow); "Progress of the Smoke Abatement Movement in Germany" (Herr Ingenieur Nies); "The Smoke Problem in the United States of America" (Mr. Z. A. Willard, Boston); "Stoking" (Commander W. F. Caborne, C.P. R.N.R.); "Smoke Abatement Laws in Other Countries" (Mr. Julian Corbett); "Is Further Legislation Necessary?" (Mr. Joseph Hurst, barrister-at-law); "The Proposed Smoke Abatement Bill" (Principal J. V. Graham); "A Bill for the Appointment of a Royal Commission" (Dr. H. A. Des Voeux, treasurer, Coal Smoke Abatement Society). Special lectures are also being organised on the different phases of the smoke abatement movement.

The Sunderland Tramways Committee has decided to recommend to the town council that the salary of Mr. A. R. Davson, tramways manager, be increased from £500 to £500 per year in instalments of £25 per annum.

Prince Victoria of Schleswig-Holstein opened on Saturday the institute and mission known as St. Saviour's House, in Union-street, Borough. The building was designed by Mr. Danby Smith, and the total cost, including furnishing, has been £3,600.

Correspondence.

EAST SUSSEX HOSPITAL.

To the Editor of the BUILDING NEWS.

SIR,—Referring to your notes concerning this competition, I send you herewith a copy of a letter I have addressed to the Hospital, which will probably be published in this week's issue.—Yours faithfully,

A. SAXON SNELL.

22, Southampton-buildings, Chancery lane, London, W.C., March 12.

(copy.)

EAST SUSSEX HOSPITAL.

The Editor of the Hospital.

SIR,—You have been good enough to forward me a marked copy of last week's issue of the Hospital, in which attention is particularly drawn to some criticisms upon the award of this competition, and remarks upon the system of judging generally.

The jury system, which appears so desirable to you, has been under consideration for many years by architects who are most intimately concerned in the matter. It has also been tried on more than one notable occasion, but the results have scarcely been as satisfactory as to recommend it.

The whole question of the competition is open to grave objection, although it must be acknowledged that it has some redeeming features. I venture to think, however, the pros and cons of a purely architectural question, such as this, is scarcely likely to be of interest to the majority of your readers. Neither is it necessary to trespass upon the space you may be good enough to allow me, by doing point by point with your correspondents' criticisms, which are so easy to make. They will be convincing to no one but such of your readers as competitors who lack the instinct of true sportsmen.

I except one point, which, if left uncontradicted, may receive a certain amount of general credence. It is such a common grievance in all competitions. Your correspondents respectively state that—

"The committee fixed the sum of £35,000 (roughly £350 per bed) as the total cost for an up-to-date hospital," and "the cost was stipulated as being essential in the selection, £35,000 being the sum the committee would have available."

The best answer to these misleading statements is to quote the actual Condition, which was as follows, viz.:—

"The committee think that £35,000 is the maximum that they will have at their disposal for the whole hospital, and, while they require the hospital to be up-to-date, they will not allow the design to be given to a design within that sum, if possible; but competitors must use their discretion in designing if they think this amount insufficient."

No honest reader of this clause suggests that the question of cost was essential.

For the rest, no good award is ever made in consideration of one or two points, but on a general survey of the design from the point of view of the other words, the best design is that which combines the greatest number of good points and the least number of errors. It is not surprising, therefore, that has given many judges to the study of the plans must be a better judge than your anonymous F.R.I.B.A.'s. By the way, it would be interesting to have their names, and especially to know if either of them competed.

The assessor's character and his work as a hospital architect are too well known to be questioned, and your correspondents' criticisms will probably cause him more amusement than annoyance.

I should like to take the opportunity of correcting a wrong, somewhat general, impression. The authors of the successful design are my brother, Mr. John Saxon Snell, and Mr. Stanley M. Spoor, sometime my pupils, and your humble servant.

Of the merits of their design it does not become me to speak; but I think no unprejudiced critic will dispute its general excellence.—Yours faithfully,

(Signed) A. SAXON SNELL.

On retirement from the post of clerk of the works at St. Paul's Cathedral, the Dean and Chapter have granted Mr. H. Harding a pension in recognition of his "loyal and faithful service," extending over a period of thirty-five years.

The church of Little Steeping, in the Lincolnshire Fens, is in a state of extreme disrepair and dilapidation, and the restoration is being supported by subscription. The most economical estimate for "urgent" work forecasts an expense of £1,150. The architect for the restoration is Mr. Wilfrid Bond, of Grantham.

Mr. G. Malet, M.Inst.C.E., held an inquiry at Oundle on Tuesday last, in order to find out the cost for the sanction to borrow sums of £520, £900, and £325, for the purpose of defraying the cost of widening and improving Oundle North Bridge, from plans prepared by Mr. C. S. Morris of Northampton, the county surveyor. The bridge was built in 1571, and partly rebuilt in 1835. It is 370 yds. long, and the scheme is to provide a roadway 36 ft. throughout, to open the flood arch, and to widen the navigation arch.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasize this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We divide the guinea between Mr. H. W. Thompson and Mr. W. S. Putwain. Mr. Thompson's is the best, and, as he says, the trade method, but Mr. Putwain's suggestion of using a fine sand, which may be of service, though we doubt if anything will ensure, at any rate, in all cases, the pleasant grey shade that eyes give oak.

QUESTIONS.

[1909].—**SLATE TASK.**—A large slate tank, previously used for the storage of water, is about to be moved into a new position and to be used for the storage of hot water. It should be glad to know the best material to join the various sections together. It is anticipated that the cedar would affect the red-lead, also that fireclay cement would be of use, as recommended. The various sections would be oiled and Portland cement be suitable? Is slate zinc, a good material for a storage-tank, a very heavy liquid? Is it liable to spoil or flake off?—Perplexed.

[1909].—**PAINT AND PASTE.**—(1) What is the best method of judging the quality of paint—more particularly the quality of the oil and white-lead contained in it? As recommended, the test is made when work is in actual progress on the job would be preferred, rather than one involving experiment with small quantities of paint. (2) What is the best suggestion a good way of making a strong gum or paste, useful for mounting drawings, and also for general use?—F. H. Lancy.

REPLIES.

[1909].—**DAMP THROUGH ASPHALTE-CONCRETE ROOF.**—The damp is caused owing to the fine air-bolts being made through the asphaltic because the concrete steamed, as suggested by Mr. Frank Wilson, A.R.I.B.A., in his reply of March 8, we can suggest a much simpler and cheaper method than taking the asphalt up and exposing the concrete to the weather for six months next summer, and then resphalting the roof. The asphalt is not a very troublesome matter. It would be much easier to render a coat of Portland cement over the entire surface, and it would be a certain cure. We have done a good many roofs with Portland cement, and they have been perfectly watertight. —Kerner-Greenwood and Co., King's Lynn.

[1909].—**OIL D. K.**—The matter mentioned by "Constant Country" is rather unusual. The chemical process nearest to the action of Nature is the application of liquid ammonia. Very strong evidence also exists that when the wood is treated in a usually obtained by giving the timber a couple of coats with a solution of one part of silver nitrate in fifty parts of distilled water, followed with dilute hydrochloric acid, and then with water of ammonia the coverings to be allowed to dry in the dark then finished in oil and polished. There are also several other solutions which would be more satisfactory, and Carbolignum avianum might also be employed. Tutors Oak and Tutorswood would be suitable for the purpose. When it is dry, some oil can that has already been weathered to the required shade, and have the genuine article.—K. H. H. Lutyens, a Building Construction, Gloucester Technical School.

[1909].—**OLD OAK.**—To make oak panelling like old oak, put some common soda into hot water till the solution is very strong and sponge the oak over with it three or four times. When it is dry, rub with fine glass-paper (the soda raises the grain of the wood), and finish off with the best linseed oil. The oak will be a rich brown colour, and will stand up in the construction of his fitting has been grown on oak, such as Lord Ragots or Delmon Forest oak, much the better for his purpose, or if he grows his own oak, he can get it from a building, and get them converted into size, and for his fitting, then he will have genuine old oak, which is what he wants. When it is dry, rub with a brown described, James Nicholson, a Roper-street, Whitehaven, Cumberland.

[1909].—**OLD OAK.**—The following is the trade method of staining oak without the use of chemicals. Grind a rough brown or black stain, large enough to bind the largest piece of fitment to

he aged; see that all cracks or joints in chamber are rendered airtight strips of paper glued outside same will do, stand the sections in this, allowing room for circulation of fumes; then place one or more shallow dishes, each containing a quart of a pint of liquor ammonia 66, and hermetically seal opening of chambers. Any desired shade of ageing can be obtained, depending on the strength of the given, twelve to twenty-four hours generally being sufficient, according to hardness of grain. This method will penetrate to the depth of as much as 1 in., and the surface can be planed if necessary, and no application of liquid is required. It also has the advantage of being absolutely permanent and not liable to fade or change. For further particulars, see H. W. Thompson, The Orphanage, Clacton-on-Sea.

[1909].—**OLD OAK.**—There are many recipes for treating the surface of wainscot to give the effect desired by your client; but the success of their application depends so much upon the nature of the wainscot and the effect anticipated that it is best to experiment on a small panel of similar material. Shaded lime, water, soda, and ammonia are the materials mostly used, with the addition of wax-polling, if a preservative is required. A solution of orange slaked lime, left on the surface until thoroughly dry, has a bleaching effect, and can be washed off with fresh water. When dry, a solution of caustic soda (1 lb. to 1 gallon of water) is well rubbed into the surface with a stiff brush or turps applied with a stiff brush or cloth. Caustic soda or ammonia solutions raise the grain and give a fine, even texture. The latter is better, and a colour a weaker solution might be tried, and a good deal of the chalkiness left in the pores.—W. S. Putwain, 9, Roff-road, Peckham.

[1909].—**OLD OAK.**—The easiest and most simple method adopted by architects, when called upon to match antique external oakwork, is to advertise for any old oakwork, such content as they can get, after pulling down old premises, and then to make a suitable selection from the timbers offered. The charm of colour relies somewhat on the "texture" of the wood, and the latter is best obtained by the softer grain of the wood shrinking and giving prominence to the harder grain. In this respect, the texture of the wood is best obtained by working a hard wire brush along the direction of the grain; but time and exposure can alone give the necessary appearance. For internal oakwork the following plan is usually adopted:—(1) Wash the oak with the BUILDING NEWS. Answer 823 says that "Slaked lime applied to oak not previously varnished or polished will have the effect of darkening it."

Answer 669 (Harry Hens), September 16, 1881, gives the following recipe to darken oak:—"Place the oak in a dark, dry, room, and cover it with a solution of liquid ammonia in a cup-plate, placed upon the floor or ground in the centre of the compartment. Shut the door, and close all cracks by pasting slips of paper over them. Leave the oak in this position for the timber. This treatment browns the wood so deep that a shaving or two can be taken off before the wood is ready for use. The colour of the wood depends on the length of exposure and the amount of ammonia used. Where only a light colour is required, if the oakwork is placed over a stable wall, it will be found to be sufficient."—(2) "Chas. A. Longley is: '2oz. nutmegs, 2oz. vandyke crystals, 1 lb. American polish, and 1 gallon of water; mix and rub over all the oakwork, and then wash with water, and mix with the polish in a pint of the water, which must be boiling.' Half an ounce of bicarbonate of potash, one point of boiling water, and 1 lb. of American polish, mixed and rubbed over the numbers of the BUILDING NEWS, he would find some useful information on oak.—September 16, 1881; also columns 10 and 11, 1881, and 1882, and 1883, 1884, 1885, 1886, 1887, 1888, 1889, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905, 1906, 1907, 1908, 1909, 1910, 1911, 1912, 1913, 1914, 1915, 1916, 1917, 1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926, 1927, 1928, 1929, 1930, 1931, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 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LEGAL INTELLIGENCE.

AN EDINBURGH AMENITY QUESTION.—Corporation of Edinburgh v. The Lord Advocate.—In the Outer House of the Scottish Court of Session on the 7th inst., judgment was given by Lord Ormrod in the action by the Corporation of Edinburgh against the Lord Advocate, as defender, for the recovery of £100,000, the sum representing the Commissioners of His Majesty's Works and Public Buildings, for declarator that the defenders have no right or title to erect houses or buildings on a portion of the Royal Botanic Garden at Inverleith-row at a distance of 30ft. from the centre line of the street, or to erect houses, walls, or other buildings above 7ft. high there, within a distance of 25ft. from the centre of Inverleith-row, without the consent of the pursuers. Interdict was further sought against the defenders making any such erection. The pursuers stated that in 1910 the Commissioners erected a two-story building, fronting and extending 52ft. along Inverleith-row, and within 30ft. of the centre of the street. On account of the projection which it formed beyond the building-line of the street, it had given rise to feelings of indignation on the part of the public. The defenders now proposed to erect buildings of the same height and width, and it was maintained 35ft. of frontage of the Botanic Gardens to Inverleith-row. The pursuers pleaded that the portion of the gardens being ground to which Section 67 of the Edinburgh Corporation Act, 1889, applied, and Inverleith-row being a turnpike road, they were entitled to the declarator and the interdict sought. The Commissioners pleaded that under Section 78 of the 1905 Act their property was exempted as well as at common law, being the property of the Crown. They denied that the building erected in 1910 projected beyond the building line. Although not bound to do so by statute or at common law, the Commissioners presented a petition to the Dean and Guild of Edinburgh, which was granted to erect the buildings. Lord Ormrod granted declarator and interdict. His Lordship did not give to the Dean of Guild's order the effect of a judgment ascertaining and determining the right of parties. The contention of the defenders founded on Section 78 raised a difficult question, but what was exempted was not all Crown property, but every building, structure, or edifice vested in or in the occupation of His Majesty. The Dean of Guild's order was warranted in reading into the section the words "or which will be vested." It was to be recalled that the defenders should not be allowed to erect the buildings in question, for they were really an existing building, which had been themselves built within the thirty-feet limit, and it was difficult to understand in what way the public interest would be affected by the erection of the extended buildings.

WATER SUPPLY AND SANITARY MATTERS.

LUDLOW NEW WATER SUPPLY.—The new water supply to the borough was inaugurated on Thursday last week by the Earl of Plymouth. Last year there was a suspicion the water supply was contaminated. The corporation then leased from the Earl of Plymouth various meadows in the catchment area, and 9 in. steel pipes have been put in place of the glazed earthenware pipes.

Further substantial purchases of property for the purpose of street improvements are recommended by the street improvement committee of the Bradford City Council. The schemes include an expenditure of £10,000 on the hills-roads, £3,303 in Sagarate and Northcliffe-lane, Thornton; £231 at Fagley-road, and £194 at Tong Lane End. It is also proposed to extend Elm Mill at a cost of £18,000.

The London and Claverham Rural District Council discussed at their last meeting the proposed new road from Birch St. Peter to Lowestoft. The total cost of the work is estimated at £2,600. One mile and a third would be in their district, and £116 had been apportioned for that part, which have been approved, and they are willing to sell at a reasonable price, and to contribute towards the cost of the work besides.

Majr Norton, R.E., on behalf of the Local Government Board, held an inquiry at the urban district council offices, Nantwich, on Wednesday week with reference to the council's application to borrow £1,075 to cover the cost of the purchase of an additional 17 acres of land in connection with their Windy Arbour sewerage scheme. The application was supported by Mr. A. E. Whittingham, clerk, and Mr. W. F. Newey, surveyor and engineer to the council, and Mr. Baldwin Latham, consulting engineer to the council. It is proposed to use the land for the purposes of broad irrigation.

Our Office Table.

The London County Council asked the Local Government Board in December to initiate legislation to secure the exemption from rating of underground sewers. The Local Government Board replied on February 9 that it was doubtful whether there was at the present time any prospect of legislation on the subject. The Local Government Committee, regarding the answer as unsatisfactory, recommended the Council to ask the principal provincial local government authorities, who are also drainage authorities, to co-operate in endeavouring to secure the exemption of underground sewers from rating. The matter is one of considerable importance to London, as further inequalities in rating would be produced if the sewers were rated, and it is held by the committee that the benefit to the ratepayer would, speaking generally, be negligible. "The only direction," the report runs, "in which it is certain that benefits will accrue is in the case of the Imperial Exchequer, which will be entitled to demand from local authorities Income-tax on additional assessments; thus the taxpayers will be relieved at the expense of the ratepayers at a time when the latter are pressing for increased grants in aid of rates."

In the Legislative Council at Calcutta on Friday, Sir S. Harcourt Butler opposed Mr. Mudholkar's motion to abolish the office of Director-General of Archaeology, and said that the Government was resolutely determined to carry forward Lord Curzon's archaeological work. The charges made against the Government of India and England were entirely groundless. It showed grave misunderstanding of important matters of fact. The Government of India contemplated increased expenditure, an increased establishment, an improvement in the production and circulation of publications, and especially the training of Indians for research and other work. Part of the collection of the Government of India, General in the Research Institute, which had been enthusiastically received in India. The resolution was withdrawn.

The Guildhall Museum has just been enriched by the addition of two panel pictures, each made up of sixty-six Dutch tiles. These panels, with three others that have gone to the South Kensington Museum, have latterly adorned a pantry at Messrs. Dunn and Vallenin's Distillery, opposite St. Mary's parish church, Lambeth; but many years ago they were, it is believed, in the collection of Horace Walpole at Strawberry Hill, Twickenham. The demolition of the distillery has necessitated their removal. One of the panels at the Guildhall depicts a landscape, with sportive figures of peasants, in the Dutch style. The other shows a vase of flowers, with drapery and birds. The tiles, which, without a flaw, are believed to have been made about 1690.

The revised route of the proposed new road between Birmingham and Wolverhampton received on Thursday week the approval of the Association of Midland Local Authorities as a scheme to be commended to the support of the Government Road Board. The two principal existing roads between Birmingham and Wolverhampton are on the north-east of the railway, and are more or less circuits. The route now proposed starts from Rees-lanes, nearly opposite the Balden-road, the latter forming a small section of Mr. H. E. Stidgell's proposed "Ring Road" round Birmingham. It is then to run northwards beyond the Warley Golf Links, and then, more westerly, between Warley, Salop, and Cakemore, crossing the Stourbridge railway near Canseway Green. Thence the route passes to the left of Oldbury and to the right of Dudley, crossing the present Birmingham Dudley Road near where it joins the road from Great Bridge. Tipton is the next point, and then bending to the north, through part of Coseley, the road will join the Sedgley-Wolverhampton Road (Dudley Road), a little before the latter arrives at Blakenhall, the most southern

suburb of Wolverhampton. The length of the proposed road is nine miles and a third, and with the exception of a fractional portion it would be entirely new. The suggested width is 100ft.—the width suggested for the Birmingham "Ring Road," the cost of construction, exclusive of land, being estimated at £120,000.

The sixty-third annual report of the Prudential Assurance Company, Ltd., for the year ending December 31, 1911, states that in the Ordinary Branch the number of policies issued during the year was 60,912, assuring the sum of £5,396,791, and producing a new annual premium income of £325,663. The premiums received during the year were £4,812,268, being an increase of £6,147 over the year 1910. In the Industrial Branch the premiums received during the year were £7,634,486, being an increase of £205,091. The assets of the company, in both branches, as shown in the balance sheet after deducting the amount written off securities, are £81,239,682, being an increase of £3,710,456 over those of 1910. In the Ordinary Branch the surplus shown is £1,788,357, including the sum of £334,311 brought forward from last year. Out of this surplus the directors have added £250,000 to the investment reserve fund, which, after deducting the £175,000 written off value of securities, stands as at December 31, 1911, at £850,000. In the Industrial Branch the surplus shown is £1,681,551, including the sum of £506,360 brought forward from last year. Out of this surplus the directors have added £250,000 to the investments reserve fund, which, after deducting the £200,000 written off value of securities, stands as at December 31, 1911, at £650,000. The total surplus of the two branches, as shown by the valuation, is thus £3,469,908. The directors announce an increase in the rate of bonus of both branches of the company, as follows: In the Ordinary Branch a reversionary bonus at the rate of £1 10s. per cent. on the original sums assured has been added to all classes of participating policies issued since January 1, 1876. This is an increase of two shillings per cent. over the rate declared for the past two years. In the Industrial Branch bonus additions will be made to the sums assured on all policies of over five years' duration which become claims either by death or maturity of endowment from March 8, 1912, to March 6, 1913, both dates inclusive, ranging from five to fifty per cent.

TRADE NOTES.

Claridge's Patent Asphalte Co., Ltd., announce that they have now been connected to the telephone service, No. 8536 City.

Under the direction of Mr. A. V. Gardner, architect, 104 Bath-street, Glasgow, Boyle's latest patent "air-pump" ventilators have been applied to the new picture theatre, Smith-street, Glasgow.

Mr. H. Guichard Todd, F.S.A. (Scott.), M.S.A., architect and surveyor, has removed to Southampton House, 31, Abchurch-lane, London, E.C. 4, Cheapside. London, E.C. His telephone number is Holborn, 627.

The Catholic Cathedral Schools, Plymouth, are being supplied with Shorland's warm air ventilating patent Manchester Grates and inlet ventilators by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Mr. T. W. Haigh, architect and surveyor, 2, Exchange-street, Edinburgh, has withdrawn from the partnership hitherto existing between him and Mr. Ernest S. Thompson at that address has been dissolved as from November 24 last. Mr. Thompson retires from the practice, which will in future be carried on by Mr. T. W. Haigh under his own name.

The well-known joinery works of Messrs. Samuel Elliott and Sons, Limited, Caversham, Reading, have been carried on for the last three or four months by the Receiver and he has been understood that the large staff of skilled workmen have been working overtime in order to cope with the orders in hand. We are requested by the Receiver to state that he is prepared to enter into negotiations for the amalgamation or purchase of the concern, and could probably arrange to finance a considerable portion of the purchase price. Inquiry should be addressed to the Receiver, Mr. Sidney W. Tubbs, F.C.A., 28, Basinghall-street, E.C.



THE BUILDING NEWS

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| List of Tenders Open | 438 |

OUR ILLUSTRATIONS.

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| New County School, Tottenham. | Mr. H. G. Crothall, Architect. |
| Chancel, Govan Parish Church, and Wharfedale Memorial. | Sir R. Rowland Anderson, LL.D., F.R.S.E., Architect. |
| Keir Memorial, Dunblane Cathedral. | Sir R. Rowland Anderson, LL.D., F.R.S.E., Architect. |
| Chimney-piece, Godesberg. | Messrs. Kayser and von Groschmidt, Architects. |
| Sundial House, Haverden. | for Miss Helen Gladstone. Messrs. Douglas and Minshull, Architects. |
| A Mountain Church in Wales. | |

THE PLANNING OF AMERICAN SUBURBAN RESIDENCES.

By GEORGE ASHDOWN AUDSLEY, LL.D.

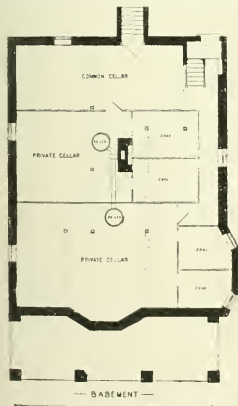
As may be gathered from the title, I confine my remarks to the planning or interior arrangement of suburban residences, leaving the vexed question of exterior design untouched. This is desirable, simply because the materials used, as a general rule, in the United States for such suburban dwellings as I shall allude to, are widely different from those universally employed in this country. Within what is

houses having a somewhat dignified and well-to-do villa appearance, but which can be inhabited by small families, that desire to live in a good neighbourhood, and can only afford a moderate rent, has given rise to the wise and very satisfactory practice of constructing what is known as the "two-family house." The two residences so combined under one roof, would, if built separately, not only occupy more valuable ground, but would cost more, and end in producing a mean appearance—all matters deserving careful consideration.

So far as the planning of external features is concerned, the veranda is the most important and noteworthy adjunct to the generality of American villas. This is universally, and, of course, incorrectly, designated by American architects the "piazza." This feature, which is so necessary in the summer and autumn climate of the States, has long been what may be called an architectural exorcism on the majority of suburban and country residences, but is now very frequently treated as an outdoor room, in strict keeping and subordination to the general design. In the majority of cases in villas of moderate dimensions, although sometimes in large country houses, the veranda appears as a narrow, covered platform or gallery extending along their façades. Where space is sufficient, a locality is frequently found for it at one or both ends of the chief front, its lines being employed either to prolong those of the main building, or to vary them in a more or less artistic manner. In many instances, these veranda-rooms, so to speak, are provided with wire screens, put around them during the prevalence of mosquitoes, and with glazed screens, which are fixed during the winter and early spring months, provision being made for their connection with the general heating system of the house. These external rooms are furnished with lounge chairs at all times, and during the cold season are covered with carpets or rugs, more fully furnished, and properly lighted. They invariably open from the principal reception-rooms. The veranda, either in its single open, or more varied form, would be a very welcome addition to an English suburban or country residence, and, perhaps, some day it will make its appearance when our builders wake up to the desirability of considering the indoor and outdoor comfort of their tenants. In the accompanying Ground Plan the very usual position and general treatment of the covered veranda are shown. It is constructed entirely of wood, and is approached by six steps, indicating a height of 3 ft. 6 in. above the ground level. Its covering, comprising its ceiling and the floor of the upper veranda, is supported on

columns, as indicated. Between the columns an open railing is carried, about 2 ft. 9 in. high, which is formed in a great variety of ways in houses of different styles of architecture. When the veranda is prepared specially for screening, the railing is usually made solid. The floor is of wood, very closely laid, and well painted with specially-prepared floor paint; it has a slight fall toward the front, so as to throw off any water that may fall upon it.

Verandas, either covered or uncovered, are frequently added to the first floor of large houses, either opening from the more important bedrooms, or from an upper hall



defined as the "fire-limits" in cities and towns, wooden buildings are no longer allowed to be erected; but beyond these, and in suburban districts and villages, they are still constructed in large numbers; this is especially the case in the State of New Jersey. The plans accompanying this article are those of two houses I erected in Arlington, a suburb of the City of Newark. Villages or suburban districts, composed for the most part of wooden houses, in many cases tastefully designed in various styles, brightly painted, and arranged, detached along avenues or wide roads, with good "parkings" or well-kept gardens in front, have a very pleasant and comfortable appearance.

The desire to produce the satisfactory effects I have briefly sketched, and to erect

or passage, so as to be common to the whole house. In the case of a two-family residence, the upper veranda is a necessary adjunct, and this is commonly uncovered, as that shown in the accompanying First Floor Plan. In this house, the floor of the upper veranda is covered with tin-plate, in the usual American fashion, and then floored with wood in such a manner as to allow rain-water to drain off, between the edges of the boards, to the tin surface below. An ornamental railing is carried around the open sides of the veranda, corresponding to that on the ground floor.

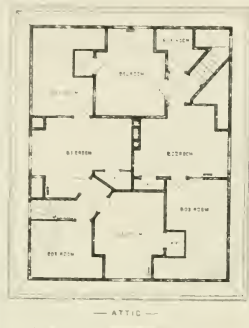
As a general rule, and, indeed, in practically all cases where the nature of the ground permits, American dwelling-houses are provided with good basements or cellars. In a house of moderate dimensions

the basement extends uniformly throughout the space within its external walls, in the manner illustrated in the Basement Plan. Apart from affording convenient cellars, coal storage, etc., the basement is fitted with everything required for the heating of the entire house above. The manner of doing this by the hot-air system is illustrated in the plans given in my Article in this paper of Feb. 16 last. In the Basement Plan here given, two boilers are in located—one for each family residence—furnishing the system of steam heating (preferred in this instance by the client), but hot-air furnaces could have been used with more desirable results, doing away with the very objectionable standing radiators, which go far to disfigure every room and to cause annoyance in other ways. A private cellar is given to each residence, partitioned with wood to the height of 6 ft. 6 in. from the floor, the space between these partitions and the floor above providing perfect ventilation. The coal stores are so placed that they can be filled by means of iron shoots passed through the open windows directly opposite. The sashes of these windows are hinged at top, and made to hook up when required. The basement is entered directly from the exterior, and also from both residences by the back staircase. The basement is kept free of solid obstructions by the use of small, cast-iron columns and strong beams for the support of all floors, partitions, etc. The general arrangement shown is a representative one in a basement of a two-family house of moderate size. In designing a two-family house, architects are called upon to give the exterior the appearance of a somewhat dignified villa, without any special evidence of there being two residences under one roof. Accordingly, it must display a single, handsome porch or entrance-decor; the necessary separation being made within. The existence of a lower and upper veranda does not necessarily indicate a double residence, for many single-family residences have the two verandas. The manner in which the single entrance doorway and porch, with the separate doors to the lower and upper residences, are conveniently arranged is shown in the Ground Plan. The front doors are panelled with bevelled plate-glass, while the inner doors have their upper panels filled with ornamental "lead glass" that cannot be seen through. The floor of the porch is laid with mosaic or ornamental tiles, and its walls have a dash of some inexpensive native marble. The beams and their accompanying wood-work are usually of oak.

On referring to the Ground Plan, which shows the residence as complete, save its share of the basement and the attic floor, the following arrangement will be observed. Its entrance door, to the right in the porch, opens into a small lobby, at the upper end of which is a convenient coat closet. The lobby is heated by a small radiator, as indicated, and from it the parlour is entered by an ordinary hinged door. In many houses a wide opening, usually hung with portières, is preferred. The dining-room is entered from the parlour through sliding doors, which are so perfectly hung on an overhead trolley, that they can be opened by a child. In the event of a social gathering, these rooms can be thrown into one, with the joint length of 26 ft. The central door in the parlour opens into a passage which gives entrance to all the other rooms in this floor; the passage is lighted by glass panels in the kitchen door and glazed transoms above the kitchen door.

The kitchen is conveniently placed with respect to the dining-room, the desirable butler's pantry only separating them. The latter is fitted up with cupboards, drawers and sink, and is warmed by a small

radiator. Swing-doors are hung between the dining-room and kitchen and the butler's pantry, being unquestionably the most convenient for the servant in passing to and fro while serving. The kitchen is furnished with a stoneware sink, and two washing-tubs formed of a very hard



artificial stone called "albarine"; these have elastic hinged covers which form a convenient table when shut down. Between the kitchen and the back entrance hall is an immediate vestibule in which is placed a properly-drained ice-box and refrigerator—an absolute necessity in every American house, and which should be introduced in every English one of any pretensions to comfort and convenience. The back staircase communicates with the basement previously described, and with



the portion of the attic appertaining to this lower residence, while it also provides the kitchen entrance to the upper residence. This staircase is protected by the single outside entrance-door.

Adjoining the kitchen, and opening from the passage, is a linen-closet, fitted with drawers and presses, and having a broom closet light from the kitchen.

The bedroom opposite the kitchen, and opening from the passage, is most conveniently furnished with a closet on one side, and a large wardrobe on the other,

The latter can be used for garments out of season, or not conveniently used, while the other closet is for daily use. A radiator is placed in one corner of the room, as indicated. Both the other bedrooms are furnished with closets of good size, and are heated by radiators. The bathroom is fully fitted with a vitreous-ware bath, an wash-basin, and a silent, low-down-tank w.c. apparatus.

A glance at the plan will convince any one familiar with house-keeping problems that comfort and convenience constitute the keynote of its arrangement. It will be seen that on this floor alone there are no fewer than six closets, all located where they are most required, and without interfering with the general arrangement of the rooms. The addition of the closets in the bedrooms simplify their furnishing, rendering expensive and lumbering wardrobes altogether unnecessary; they are fitted up with the necessary shelves above and drawers and dress-hacks in convenient positions.

The attic accommodation belonging to this residence is described later on, along with that appertaining to the upper residence.

The left-hand entrance-door in the porch opens on to a staircase, which leads directly to a small hall on the first floor. Here a coat-closet is provided, and an adjoining door gives access to the upper uncovered veranda, which has been already alluded to. The other door opens into the parlour of this upper residence in the same manner as that of the residence below. The staircase and hall are well lighted and warmed.

The arrangement of this residence is almost identical with that already described. It will be seen, on referring to the First Floor Plan, that the only difference obtains in the absence of the large wardrobe in the bedroom opposite the kitchen. There are, accordingly, only five closets in this upper residence. Under these circumstances, a description of this residence is quite unnecessary. I must, however, just mention the absolute necessity of so constructing and deafening its entire floor as to cause no annoyance, by undesirable noise, to those in the residence below. Different systems of deafening are resorted to; but, perhaps, that in which a thick, quilted fabric, containing a close layer of a species of saw-wood, is suspended from joist to joist is the most efficacious. When this is properly placed, and tacked to the upper edge of the joists, wide boards, commonly of hemlock or fir, are laid diagonally and securely nailed, through the deafening to the joist. This rough flooring remains uncovered until all the lathing and plastering are executed, the windows are inserted, and other rough work has been finished. Then, when all rubbish has been removed from the rough flooring, a thick paper, a thin hair felt, or asbestos cloth is laid over it, and the final flooring is laid and securely nailed down. This final flooring is very commonly of maple boards, 2 in. thick, and 2 1/2 in. exposed width, grooved and tongued and side-nailed. Comb-grained pitch-pine is also frequently used, and treated in a similar manner. By the treatment described, a very satisfactory floor is the result, as the practical man can readily realise.

The Attic Plan now claims attention. Here again one observes every care taken to secure the maximum amount of convenience. In the first place, its floor-space is equally divided between the two residences below, and each division is reached by its own staircase. Each division comprises two good bedrooms, properly fitted with closets, and is well warmed with radiators as any of the lower rooms, and amply lighted by large dormer

style here and there in the provinces almost to the end of the century. But long before the death of Louis XIII., in 1643, a different spirit had begun to come over architecture. Works on the orders and the theory of design again began to appear. Men who had taken refuge in Italy returned, and younger ones resumed the practice of going there. The first architect of great talent to produce was one architect of great talent in Salomon de Brosse. As a grandson of Jacques du Cerceau and nephew of the latter's two sons, who were all architects in the royal academy, he inherited a high tradition of design, and was well fitted by his training, as well as by his position as First Architect to the Crown, to reform the practice of going there. The best in current methods, he added to them a touch of classical dignity. De Brosse was a little heavy, a little uninspired, a little uncertain, even when at his best. But the Classicising tendency, the first symptoms of which reappeared in his work, was maintained throughout the succeeding period from 1624 to 1661, which coincides with the reign of Louis XIII. and the cardinal Ministers, Richelieu and Mazarin. The first architect of De Brosse was François Mansart, possibly his pupil. Other eminent architects of this period were Antoine La Pautre and Louis Le Vau. Le Vau's work, while never reaching the supreme accomplishment of François Mansart, is always dignified, and often touched with some degree of imagination. By a rapid and almost unobserved abandonment for half a century, and no sounder basis in combination with smaller orders, he illustrates at once the renewed influence of the Italians and the growing trend of the age towards the grandiose. Up to the "sixties" the chief glories of 17th-century architecture are the sumptuous mansions in town and country. The first thirty gave birth to Versailles and the Tuilleries, the most splendid and pompous monuments built at public expense. The change, too, is symbolised in the very character of the architecture. Before, we have multiplicity; after, unity. Before, great buildings are broken up into pavilions and galleries, with roofs of varying height and important dormers and small roofs prevail; after, we have single unbroken roofs, continuous and unadorned, and balustraded roofs and colonial orders. The advent of Perrini among the French architects in 1655 to design the east front of the Louvre was the touch needed from outside to precipitate the transformation towards which all things had been moving. Bernini's design, whatever its defects—and it is certainly not without them—was so good that it was not carried out as such, but by striking a single unmistakable note, with its bold, almost unbroken, cubic mass, its gigantic order and cornice, it proclaimed itself unmistakably the palace of a sovereign of irresistible power. If this change in the aims of architecture was in all respects a gain is open to question. Bernini had expressed the feeling of the French for the grandeur of art. It was reserved for Claude Perrault to translate it into the suaver language of a Classicism more congenial to the French taste of the day. The stage which Classical architecture in France had reached after a century and a half of experiment now crystallised, and was perpetuated till the Revolution by the precept and example of the Academy of Architecture founded at this time under Royal auspices. This stage may be described as a kind of Free Palladianism, based on study of the antique and of the Italian writers of the 16th century; but it did not demand slavish or pedantic imitation. Its chief spokesman was the architect François Blondel, the architect of the Porte St. Denis, and its chief exponent Jules Hardouin Mansart. The Jules Hardouin Mansart, great-nephew of François Mansart, who succeeded to the post of architect to all the Royal buildings at Le Vau's death in 1670, was wholly of the new way of thinking. At Versailles he was handicapped from the start, and his efforts to redeem the scale was doomed at the very first. The Le Brun died in 1690, but his influence had been waned before that, and a lighter, more playful manner had begun to be visible in the works of Bérain and other contemporaries.

designers. H. Mansart himself began to modify the solemnity of the interiors he designed. Louis's own rooms, remodelled about 1690, are decorated in a noticeably less emphatic manner than the State reception suite. In 1715 the old king died unregretted, and was buried almost unnoticed in his grave. The new king, Louis XV., began his reign surrounded with a host of new "hotels" by all the fashionable architects of the day, among whom were Robert de Cotte, Mansart's son-in-law and partner; Cailleteau, his assistant; and Jacques Jules Gabriel, his relative and subordinate in the Royal works. The architecture of the first half of the 18th century maintains as a whole the massive monumental character of the 17th century, but during the late 17th the new tendency of the correct official art of the Court and capital to relax its formality in the caprices of Bérain and Watteau was reinforced by another influence from Italy. Italian Barocco and consisted at first largely in breaking up and freely recombining in new connections the elements of Classical design, re-arranging in a new and capricious order the ornaments and tortions. As the 17th century drew on, a type of design was evolved in which the whole effect was obtained by combinations and contrasts of flowing curves, both as regards plan and elevation, and in which definitely Classical elements had almost disappeared. It is to this phase that the term "Rococo" should be restricted. In France the Rococo style was gradually and progressively being to this phase was reached, and when the new curvilinear, or Rococo, manner began to creep in, in the last years of the reign, as in the work of De Cotte and Oppenordt, its influence was almost entirely confined to internal decoration and a few external ornamental details. It is more than doubtful whether such compositions as those of Jules Hardouin-Mansart and his school, which the architecture appears to be agitated by a violent seismic disturbance, were intended for anything more than paper fancies. In any case few, if any, buildings were erected in France that can be said to show a thoroughpaced Rococo character. With few exceptions, the influence of the Louvre Colonnade is very apparent in all secular architecture, and in public buildings is a still more dominant influence; however the influence of the Rococo had free sway. This transitional stage is characteristic of the work of the Regence. But soon such relics of Classicism as orders and strongly-marked cornices were to disappear with all straight lines—except those formed by the vertical sides of the panels—and particularly the bold projections, with all their heavy and formal was eliminated. The Rococo movement was primarily one of reaction against a fashion which had been carried to excess, which could only please so long as it was used with moderation, and which in any case was of limited range, and suited only to peculiar circumstances. It gained force from the general reaction against the mannerism which pervaded the 18th century and brought about researches into the architecture of Rome and Greece both in Europe and Asia. In 1733, in the decade when the Rococo phase was at its height, Servandoni, a young architect of Lyons, who had worked in Rome under the painter and decorator Panini, won the first prize in a competition for the interior of the church of the Sulpices in Paris. Not only did this design break entirely with the Jesuit type of front, which for over a century had been supreme in France, but it was conceived in a type of pure austere Roman architecture, devoid of all elaboration or trimmings. Within the same decade at least two secular buildings arose which showed the new spirit in architecture. One of these, the Fontaine de Grenelle in Paris, erected in 1739 from the designs of the sculptor Edme Bouchardon, and the Hotel Dieu or hospital at Lyons, begun in 1737 by the Lyonnese architect, Jacques Germain Soufflot. The new phase of style, which began to arise between 1730 and 1750, was practised concurrently with the Rococo during the twenty years which preceded the Revolution, has received the name of Louis XVI., who, however, did not come to

houses in the minor towns and villages of France, which possessed great charm, and were full of lessons to modern architects in balance, proportion, and detail.

The motion was seconded by Mr. H. Heathcote Starnam, who observed that the French Renaissance differed in one important quality from the Italian phase of that movement from which it was derived. The architects of Italy never really took to, nor assimilated, the Gothic style. The French, on the other hand, were masters of Gothic, and imparted much of its feeling to the new Renaissance, which, in their hands, assumed a singularly beautiful, romantic, and picturesque character. Indeed, it was obvious that French Renaissance architecture added much to the pleasure of the world by its freedom, picturesqueness, and beauty. No one could look on the illustrations shown that evening without feeling the contrast between the strength of the work of Perrault and the insipidity and weakness of that by Jacques Carrey.

At Mr. Versailles he could not agree with the praise bestowed upon it by the lecturer: it was a bundle of littlenesses—the biggest palace in the world, it possessed not a single decent staircase, and the effect of J. H. Mansart's Palladian façade was impaired and nullified by the obstinate determination of Louis XIV. to retain Le Vau's central block. This early block protected between the younger Mansart's vast wings, and destroyed their symmetry, for there was no viewpoint from which one could take in the whole of the façade. He should be pleased if Mr. Ward would give his authority for asserting that Servandoni, of Lyons, was of Italian birth and parentage.

The Chairman congratulated Mr. Ward upon having composed in his admirable paper the story of 350 years' development of Neo-Classicism. France had always maintained the vitality and vigour of its architecture, as they had seen that evening. He could not agree with Mr. Ward that du Cerceau had any claims to be regarded as a full blown architect. He was undoubtedly an able and distinguished draughtsman, but was not a penetrator of some most notoriously bad buildings. Nor was Jean Bullant, nor still less was Primaticcio an architect; nor did he belong in Flemish painters blossoming forth as designers of buildings. The buildings which were attributed to these artists were merely French versions of those which were executed in Italy. The first 160 years of the French Renaissance might easily be split up into three distinct periods: of the workers in the first phase they knew very little, in the second portion they might class the work done by such true architects as Bramante, de l'Orme, and others; and the third comprised the reorganisation under Louis XIV. which really laid the foundations of the French art of to-day. The last period—that of the days of Henri IV. and ending with the death of Mazarin—must be regarded as the one that laid the foundation of the vernacular architecture of France and, therefore, is the most important phase of the Renaissance. Many writers who had dealt with the history of the Renaissance in France had mistaken England and Scotland for architecture. Art did not move as he thought, in cycles, but steadily progressed, and the student of sculpture could not do better than give his attention to the work of these great French masters, which has been described by Mr. Ward that evening.

Mr. Ward in reply said he thought the Chairman had done well in concluding his remarks that French Renaissance architecture had not exercised much influence on the architecture of England. Mr. Starnam had been very hard on Versailles, but it certainly possessed one good staircase; the original one was destroyed one of the more recent restorations. He should like to be allowed to begin a tribute of admiration to the historic building on this subject by the Chairman, which possessed a charm and lucidity which rendered it one of the great works of literature.

A Local Government Board inquiry into the application of the Barnsley Corporation for permission to borrow £96,640 for waterworks extension was held on Friday.

MODERN INFLUENCES ON PAINTING.

A lecture on this subject was delivered on Thursday night to the students of the Edinburgh Art College by Mr. F. Morley Fletcher, the Director. He remarked that it would seem as if there had been no time in the past in which the straight and narrow way of Art was so much in danger of being lost, or so difficult to see and follow clearly, as it was in their own time of strange movements and doubtful meanings. The object of a college such as theirs to train students in the perception of principles not less than to develop their technical skill. The importance of this training increased with the ever-increasing complexity of the means of artistic expression. The student who would find his way surely amid the theories and fashions of Art was, in these days, in dire need of the knowledge of true principles. In order to supplement the more technical class work of the college, the winter course of lectures had been instituted mainly with a view to that end. The influence of a new idea relating to pictorial expression might be due to reaction from an excessive devotion to the ideals of a past time, or, at the lowest estimate, might be no more than a fashion that spread like an infection and seized those who were weakly or morbid. Yet it might also be the sign of genuine development, a step in advance towards the truer understanding of beauty and its expression in Art. To the end that they might understand better their present position if they looked backwards and saw the direction by which they had come to where they now stood, the lecturer proceeded to trace the development of painting in its technical aspects from the early times of graphic description, in the beginning of which the early Greek portraits showed the treatment of light and shade in Mediæval painting, and the great period of the Renaissance, to the introduction of oil-painting, which provided the means of closer realism; then the change from painting the thing as it was to painting the thing as it appeared; and, lastly, when the resources of modern science had brought painting to the extreme limit of realistic power, they had a new direction towards a realism that was mental and metaphysical. In the work of the impressionists, the art of painting expressed a consciousness of vision rather than actual facts. The study of Far Eastern art had given them greater freedom in design and pattern; but they were still in the stage of learning to use perfectly the powers and tradition handed to them by the impressionist school—a tradition in direct line from the great masters, a tradition that included the knowledge of all their achievements. Examples were shown on the screen by the light of the work of various masters marking the stages of this development.

THE POST-IMPRESSIONISTS.

From the time of Manet the history of painting became one of apparent confusion and disorder. The new powers placed in the painter's hand by science and mechanical development became greater than ever before, while regard for tradition and systematic training was almost lost. It was no longer a history of schools, but broken up into a series of groups of individuals. A few salient figures and some notable achievements emerged, however, with indications of a significance that they could not disregard. In this connection, the lecturer described and illustrated the work of several of the later impressionist groups and individuals, and pointed out the significant qualities of the so-called "post-impressionists"—in particular, the work of Van Gogh and Gauguin. In dwelling upon the polemical aspect of much of the modern French art, the possibility of its being a reaction from the monotony of the imitators of Whistler, Mr. Fletcher expressed sympathy with certain elements in the modern movement, with the craving for a fresher and stronger style, and for a franker statement. He held that, of all signs of promise in the new movement, the greatest and best was the fact that the old line of division between so-called decorative and pictorial art was disappearing.

Whether painting was to cover a wall or fill a gold frame, design was now a matter of equal importance to both. Pictorial art was no longer content with realism, and was weary of mere realistic technique. Stress was laid on the consideration of modern work of scale, emphasis, and the general question of pictorial value as elements essential to the modern painter; and, in conclusion, he drew attention to the danger that, for lack of definite employment on work of public need or of national interest, such as fell to the lot of the architect or engineer, the artist might become over-absorbed in a personal view and in the recording of merely personal impressions, with the result, not infrequently, of a self-conscious preoccupation. He expressed the hope that more and more demands for public and national work might be an outcome of the great increase of modern public interest in art. A feature of much interest to the audience was the exhibition on the screen of reproductions of pictures by some of the more extravagant "post-impressionists," who pretended to paint states of mind.

A MOUNTAIN CHURCH IN WALES.

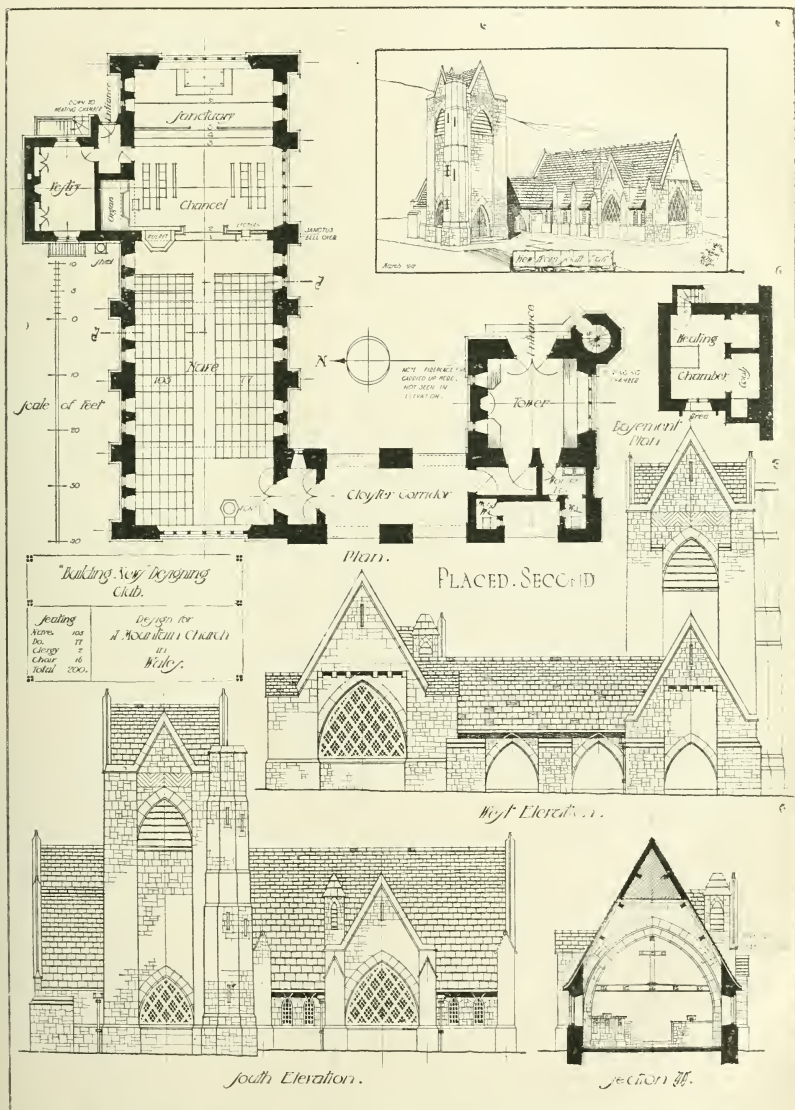
We give herewith the Second Placed Design in the BUILDING NEWS Designing Club for the above, which, as stated in the assessor's award last week, on p. 377, we were obliged then to postpone on account of extreme pressure on our space.

BRITAIN AND THE BRONZE AGE.

Dr. T. Rice Holmes lectured on Ancient Britain at the Royal Institution on Tuesday. He observed that the earliest work of the Copper Age in Mesopotamia, Egypt, and Cyprus, but some authorities maintained that for Britain the evidence was not enough. He ventured to say that the indirect evidence was strong. There was hardly sufficient evidence for the assertion, which had been often repeated, that the introduction of bronze was a result of invasion. A new industry made its way into the country through the medium of trade, and it was probable that it entered this island in the same way. It would have been expected that the wealthiest part of Britain was the south-east, and the prodigious abundance of barrows around Stonehenge could be explained only by supposing that the bodies of chieftains, of their wives and children, were brought from distant parts to be buried there, as a hallowed spot. The mounds clustered in the neighbourhood of Stonehenge many times outnumbered all the long barrows in Britain. Three hundred still existed in an area of twelve square miles. The characteristic cult of the Bronze Age was the worship of the sun, which naturally arose with agriculture, and stone circles, though very many of them enclosed barrows or other sepulchres, might here and there have served as solar temples. Of all the stone circles, Stonehenge was the most famous, and in its artlessness was the most artistic of all rude stone monuments. The grandeur of Stonehenge did not depend upon its size; but, rather, upon its mutilated, yet many of its stones fallen and others gone, it impressed all who were sensitive to nobility of design as the creation of a master mind. Until the site had been thoroughly excavated, and perhaps even then, it would be impossible to ascertain its date. They only knew that it was erected in the Bronze Age, and when the Greek explorer came, who first made this island known to the civilized world, Stonehenge was standing in all its glory.

New works of water supply in the village of Whitcomb, Staffs, have just been carried out by the Rudolph Rural District Council from plans by the surveyor, Mr. S. Gibson, and were formally inaugurated on Thursday in last week.

On Wednesday week the Bishop of Lichfield dedicated gifts to St. Chad's Church in a new bury, made by Mr. Cooper of Rington, in the memory of her late husband, the Rev. Nathaniel Cooper, taking the form of a green marble (verde antique) floor in the sanctuary, and new English oak altar rails with Cornelian panels. The architect was Mr. Mervyn Macartney.



DESIGN PLACED SECOND FOR A MOUNTAIN CHURCH IN WALES.

ECONOMICS OF PRACTICAL CONCRETE WORK.*

PLACING CONCRETE.

No concrete should be placed until it is definitely determined that the forms are correct and properly braced. It is cheaper to delay the work than to cut out work already done. Concrete should be placed as quickly as possible after mixing, and not be disturbed thereafter. The placing of concrete is one point where the material is abused to the greatest extent. We take great care of a green brick wall, but do not hesitate to walk over and conduct operations over concrete which has not reached its final set, thereby destroying the surface of the concrete for all time. While this may not be serious in some cases, it is certainly not desirable in thin concrete slabs. Concrete is better placed by chutes than by wheelbarrows, carts, etc., for the reason that by chuting the material is constantly kept in the process of mixing until it is deposited in the work. With barrows or carts, the heavier particles settle to the bottom, and when the mixture is dumped into the work there is a separation. Chuting also allows the placing of the concrete with a minimum of working back and forth over the work just completed.

The ideal condition would be the completion of the work without interruption; but as this cannot be attained, care should be taken in the location of, and in the manner of constructing, the connecting joints as the work progresses. Breaks should preferably be made at the centre of slab spans and at the centre of girders, or over the centre of columns transverse to girders. Slab spans may be jointed longitudinally over centres of girders or beams; but this method should be considered a second choice. Columns should not be poured all at one time. Generally, a height of 4 ft. should be allowed to set for three or four hours before the second pouring. Slabs, girders, and beams should be poured continuously up to the determined joint where stop-forms have been placed. The method of pouring girders and beams, the bottom of the slab, and then afterwards placing the slab is not desirable. The method of pouring a slab and allowing the material to slope down over the girder, and then beginning the next day, gives a slip slab joint which cannot be recommended. In all concrete-work, stops should be made on horizontal and perpendicular lines at locations mentioned, the forms being carefully placed.

FINISH OF CONCRETE.

We are wrong in our present practice of finishing concrete surfaces. The surface finish of a piece of concrete should be an integral part of the main construction, and of the same mixture and same composition. Time was when we were called upon to plaster and apply a surface coat to vertical surfaces. After a good many years of argument by the practical concrete workmen, we have reached a point where such surfaces are generally finished by spading so as to bring the finer particles to the surface, and force the large particles back, so they are not exposed. We are, however, following the old practice in respect to horizontal surfaces, applying a thin coating of a rich mixture on top of our cheaper concrete base. In order to secure the best results, we should so manipulate the concrete as to bring our finish to the surface from the material of the concrete base. When we reach this point we will have no trouble with checking, insufficient bond, etc., and such a finish can be easily obtained by the use of proper tools for tamping.

CONSTRUCTION OF FORMS AND CENTRES.

If there is one element entering into the cost of concrete which is neglected, it is the cost of forms and centering. So far as it is known to the writer, no architect or engineer ever submits to a builder a plan for this part of the construction. Even the specifications are vague and indefinite.

*From a paper read by Dr. WITTY V. MOORE, Indianapolis, Ind., before the Indiana Engineering Society.

leaving it to the individual contractor to plan his own work. Some go to one extreme, and use a great deal more timber than is necessary; others to the other extreme, and use so little, and of such light construction, that the work is out of line and out of plumb. When it is considered that the cost of forms and centering represent from 20 per cent. to 33 per cent. in the cost of every cubic yard of concrete placed under average conditions, it is hard to understand why the subject is not given more consideration.

Ordinarily it is left to the carpenter boss to put up something by rule of thumb, and by his judgment, based on past experience. There is nothing practicable about such a method. The designs for the forms of any structure should be carefully planned to accomplish the results with a minimum of material and labour, giving due consideration to the maximum amount of salvage in the material. It is our contention that accompanying the plans for any structure there should be prepared by the engineer and architect a sheet detail drawing showing how forms should be constructed, thereby insuring quality of workmanship and placing all bidders upon the same basis. If this is done, there is nothing to hinder any contractor from submitting an alternate design.

TYPES OF REINFORCEMENT.

Types of reinforcement now on the market may be classified as follows:—(1) Plain bars, either medium or high-carbon steel; (2) plain bars deformed or cold worked to secure deformation (this classification includes cold twisted and hot twisted square bars); (3) special patented types of plain or deformed patented bars; (4) built-up bars, meaning thereby combination of various sized members in order to utilise the quantity of steel to the best advantage; (5) built-up frames composed of bars of various sizes, generally used for beams, girders, and columns; (6) floor slab reinforcement of sheet metal, sheared, punched, or expanded, in order to distribute the load and resist the mass, and delivered in sheets; (7) cold-woven wire similar to fencing material, delivered in rolls; (8) secondary reinforcement in the way of hoops or bands for columns, stirrups for beams, and spacers for rods, all of which may be made of hoop iron or wire.

SELECTION OF REINFORCEMENT.

Considering the various types of reinforcement just mentioned, and the many modifications now on the market, it is a difficult proposition to select the best, and generally the selection is determined by the price submitted by the commercial engineers bidding under sub-contract to furnish reinforcement. A certain extent this method is dangerous; but it is hard to suggest a remedy. Individual preference and experience are always a very large element.

PLACING REINFORCEMENT.

The design of a concrete structure contemplates the placing of the reinforcement in exactly the position shown by the plans and cross-sections of the various members. Designers are usually quite conservative in their allowances for protection of steel by fireproofing concrete below it, and the contractor better err on the safe side, and take advantage of this allowance, rather than to keep above the same. Many times reinforcement, and especially light bars, expanded metal, and wire fabric, are laid upon the forms, and then afterwards manipulated by a hook as the concrete is placed, jerking the reinforcement upward, so that the concrete may flow underneath. This is dangerous, inasmuch as there is no gauge to determine the final position of the reinforcement, and if the concrete flows under the reinforcement in a large quantity, it is almost impossible to reduce the reinforcement without rebuilding the entire work.

Automatic spacers and devices for the accurate placing of the steel are readily obtainable, and should be used. Naturally, there is some increase of cost due to such a method; but it is money well expended. Especial care should be taken in placing steel in girders and beams so to distribute and arrange the

bars that each individual part may be incorporated within an individual part of the concrete. The reinforcement for columns should be accurately made, and wired, with the hoops and stirrups in place, before it is erected in place ready to build the column forms around it. While good results can be secured from bar reinforcement, the author is at this time in favour of built-up columns of light structural shapes, for the reason that the integrity of the whole building depends upon the column construction, and a failure of any one column is liable to result in a failure of the entire building. Perhaps the most important reinforcing detail in respect to proper placing is top reinforcement of reverse flexure bars. No matter what the designer may have in mind, in theory, and how these bars are proportioned with reference to the main reinforcement at the centre of the slab or beam, it is absolutely essential that these top bars be placed accurately, and not disturbed thereafter. This is easier said than done. The main reinforcement is embedded in the solid concrete below the surface, and is protected from disturbance. The top reinforcement is close to the surface, where it is affected by the future operations, and also where the free ends project in case of a break at the joint. In the progress of the work, these free ends, if jarred, will many times break the bond of the half-bar extending into the work. The placing of loose stirrups is a task requiring very careful supervision, and this is one of the strong arguments for built-up sections, wherein the stirrup shear members are rigidly connected. Finally, the employment of an expert mechanic or steelworker at increased wages over common labour is justified by the importance of this part of the work.

PROPORTIONS OF CONCRETE.

It is very usual to specify 1 2/3:5:4 or 1:3:6 for the proportions of cement, sand, and gravel for plain or monolithic concrete work, and the usual specifications for reinforced concrete is 1 part cement, 2 parts sand, and 4 parts gravel, although some engineers specify a richer mixture for columns. Inasmuch as there still exists a general ignorance on this point, whereby these specifications are understood as being 1 1/4:1 or 1:1/2:1/2 respectively, it is well to see that the best specifications should read that a mortar should be mixed of one part of cement to so many parts of sand, and this mortar should then be mixed with so many parts of the aggregate.

PROPORTIONS OF CONCRETE FOR THE STRENGTH.

The ideal mixture of concrete assumes that the aggregate and mortar are mixed in such proportions that the most dense, solid, and homogeneous mass is secured. This result may be secured by expert engineering supervision; but in reality the good common-sense of the expert concrete labourer may be depended upon. The contractor who has accumulated a knowledge of concrete can determine, by the appearance of the concrete mixture, and by working the mixture, whether he is securing the best results, and, after a long experience, the author is inclined to say that he would just as soon trust a practical common-sense labourer's opinion as to base his work upon the report of a so-called expert engineer.

PROPORTIONS OF CONCRETE FOR THE COST.

If a 1:2:6 mixture will satisfy the necessary strength required for a construction, there is no necessity of using a 1:2:4 mixture inasmuch as the first mixture will require approximately 1 1/2 blb. per cubic yard, while the latter will require 1 1/4 blb., a difference of at least 50 cents per cubic yard in actual cost. Many times, for footings and monolithic work 1 1/2 blb. per cubic yard of concrete is all that is necessary. Why specify a rich mixture when one with a less amount of cement will at answer the purpose. If the contractor is at all skilled in estimating, the extra cost will be included in his proposal.

ESTIMATING A PROPER ANALYSIS.

No proposals should be made upon a concrete job until a proper analysis has been

made of all the elements entering into the concrete construction. It is not sufficient to say or to guess that the cost of a cubic yard is so much; but, instead, an analysis should be made of the cost of a cubic yard of concrete under the conditions specified. There are a great many elements entering into the cost determined by such an estimate, which will be briefly stated in the following:—

COST OF MATERIALS.

Depending upon whether the concrete is to be made of a natural mixture of gravel or of stone and sand in various proportions will depend the cost of the aggregate. The amount of cement depends upon the proportions of the concrete, as also do the amounts of gravel, stone, and sand. The cost of water for proper manipulation should not be overlooked. In cities the cost of water is determined by rates of 9 or 10 cents per cubic yard; outside of cities the cost depends upon the labour necessary to secure the water.

Concrete-work remote from populous centres cannot be done at the same price as when close to such centres, unless the work is so remote that a permanent camp can be constructed, and the labourers held by the very remoteness of the work. Work that is at some distance from the point of supply must bear a charge for transportation, handling, and hauling of raw materials. This is a labour charge which is chargeable to material, inasmuch as the materials should be considered as f.o.b. the job; but nevertheless the cost is increased per cubic yard in the proposal.

A wall of concrete 27ft. thick may be retained by the same forms and the same amount of form labour as are necessary for a wall 1ft. thick. In the latter case the cost per cubic yard of concrete is twenty-seven times as great. It is, therefore, not so to estimate the cost of forms on a basis of guess price per cubic yard of concrete. Each individual job should be estimated for the amount of timber-work as carefully as for any other item. It does not matter whether the cost is estimated on the basis of floor foot or concrete surface, or upon a basis of feet board measure of lumber—the result is the same, inasmuch as this important branch of concrete construction receives individual consideration.

There seems to be a misunderstanding as to the separation of forms and centres. Forms, properly speaking, consist of the timber-work to form these members of concrete construction, such as columns, girders, etc., which must possess a certain regularity of form and evenness of outline. Centres, properly speaking, consist of timber supports for floor-slabs, bridge centres, etc. Where the great amount of labour and timber-work is expended solely for the purpose of supporting the mass at a uniform or definite height, the unit cost is much less than for forming for individual members.

Fabricated reinforcement will cost much more delivered to the job than loose bars; but, on the other hand, will cost much less to place in position. It is needless to say that a job where reinforcement is made up of small bars less than $\frac{1}{2}$ in. will cost much more per ton for labour than for large sections. Good judgment must prevail in this particular. It is very seldom that an estimate will be made based on the labour and the tonnage of each size bar. Rather it is the practice to strike an average labour price in harmony with the class of work to be encountered with reference to the different sizes of reinforcement. It is well to remember, however, that it takes practically as long for the steel-man to place and wire a $\frac{1}{2}$ in. bar as a 2in. bar, while the tonnage is only one-fourth as great; and this point should be kept in mind in making an estimate.

There are a great many items of the cost of concrete-work which are included in the cost of materials, labour, forms and centres, reinforcement, etc. These costs consist of installing and removing machinery, coal, oil, repairs and fittings to machinery, general charge items, such as rope and bolts, and

the loss on petty tools, such as shovels. Such costs may be determined on the basis of so much per cubic yard, or preferably they may be determined on the percentage of labour on different classes of work. No matter what the method of determination, the costs are real expenses, and are as justly chargeable as those for gravel, or cement entering into the work.

SUMMARISED DETAIL ESTIMATE OF THE COST OF ONE YARD OF CONCRETE.

In the line with the foregoing remarks and the importance of the detail study of concrete, we submit the estimate for a cubic yard of concrete which according to specifications should be of a 1:2:4 mixture, to be used for purpose of building construction, and making these estimates we desire to lay emphasis on the fact that no two jobs cost the same when itemised in this way.

| | |
|---|------------|
| 0.9c yds. gravel at 1.30cdol. | 1.17 |
| 0.4c yds. sand at 1.00cdol. | 0.45 |
| 1lbibis. of cement at 1.20cdol. | 1.20 |
| 300ft. B.M. of lumber at 30cdol., used four times at 20 cent. less each time, cost 40 cent. savings | 1.08 |
| Reinforcement, 150lb. per yd. at 2½cts. | 3.75 |
| Total cost of material | 6.60cdol. |
| Labour concrete | 2.00 |
| Labour forms, 80ft. B.M. at 30cdol. | 2.40 |
| Labour centres, 120ft. at 20cdol. | 2.40 |
| Labour reinforcement, 150lb. at 1½cts. | .75 |
| Total labour | 7.55cdol. |
| General charge items, proportion of 15 per cent. | 1.13cdol. |
| Total actual cost 1-cyd. concrete | 16.94cdol. |

Each individual job that is encountered should be estimated in the same manner. It might not be necessary to throw the cost of forms and centres, reinforcement, etc., into the cost per cubic yard of concrete; but however the estimate is made, it should consider all these items, and in the end the result will be the same. If in addition there is to be applied a surface coat or finish its cost must be added.

If there is any one item which adds to the cost it is the form and centering work. For instance, in the detail estimate just given, cost of lumber and form and centering labour is \$5.88. If the work had been twice as heavy the cost of this labour would only have been half as much per cubic yard. This should bring home to every estimator the importance of dealing with temporary structural work as a separate unit. Personally I like to write would rather guess the amount of reinforcement per cubic yard than to guess at the cost of forms and centres. The cost of labour is dependent upon the amount of concrete placed on the square foot of area of work covered, inasmuch as the cost of placing depends upon the distance travelled and the amount handled, the greater the distance the less the quantity, and the more cost per unit; and the less the haul the greater the mass, and the less the cost per unit. Such labour cost may reach anywhere to \$3 a yard, and it is suggested that a careful study be given each job to determine the amount of foot-ponds of work necessary to complete it.

It is suggested and recommended that each separate and distinct job should be given a detail cost recording in line with the foregoing, in order that future work may be properly estimated. It is a very simple matter to arrange a cost record book with a system of time reports so that such records may be obtained and the bill without increase in labour or cost.

WATER-COLOURS FROM THE SOUTH OF FRANCE AND THE PYRENEES.

Professor Wallace Rimington needs no introduction to our readers. His delightful drawings of architectural subjects are familiar to every English architect. An exhibition of his latest work was opened last Friday at the Fine Art Society's Galleries, Bond-street, and the assemblage includes many very charming landscapes, representing chiefly the lesser-known districts in the neighbourhood of the Pyrenees. Some are not precisely located, and among these is "The Harvest Field" (50). It is very men-

tioned for the airy and vigorously handled charm distinguishing this drawing, which is distinctly one of the most notable in the room. Architecturally, perhaps, No. 69, marked "Subdia di Santo Domingo, Gerona, Spain," takes the precedent place. The comparatively unknown character of this city on the rapid river Oña, and situation on the steep side of the hill, adds to its charm. It is famous for the wide-naved cathedral, which has the widest vault in Christendom, spanning a space of 73ft., or 30ft. wider than the nave of Canterbury, and 21ft. more than that of York Minster. The churches of San Pedro and S. Felici also add to the interests of this picturesque city, most of its old houses being arched below, and often grained with ajimez windows and open stages above under the roof's eaves. The Fonda de la Estrella, the most curious old house in the city, is one of the earliest in the town, with shafted windows belonging to the end of the 12th century. Mr. Rimington's sketch shows the numberless steps rising up the slope forming the street in his picture, and seen under a raking staircase rising diagonally above the fore-front of the house, realising the acmé of quaintness, broadly and brilliantly drawn. The next study, executed in cold mountain air, represents the ribbed tiled roofs of the Village of Corps, near Grenoble (68), overlooking the gorge to the left. The Romanesque church, with its 12th-century belfry at Cornella de Conflent, on the pass through Villefranche, is shown by No. 40, in dark brown stone, and near by are to be seen the remains of the Augustinian Priory. The village itself has several good Renaissance houses still standing. The portal to the church chosen for this water-colour of Corps is in beautiful white marble. The gateway in the picture of La Grave (No. 40) corresponds with the sobriety of colour peculiar to the Pyrenees and browned by the church itself, with its Romanesque apse, so charming and unassuming in its reserved simplicity. The walls of Auney may be the subject for a refined ivory-like sketch (42), showing the steps up the steep street below the wide spreading eaves, projecting over the ramparts and houses flanking the thoroughfare. Pau, 26 miles away from the real mountains of the Pyrenees, is often merged for weeks in a shroud of dense atmosphere, but rising possibly over these mists stands the skyline of the Chateau of Henry IV., so much renovated, however, that its antiquity might well be questioned. The approach is over a bridge spanning the moat. The trees along the ramparts above have assumed an autumn tint. Mr. Rimington's bridge picture (44) and the half-timbered low buildings, under which the water runs, give scale to the towering castle skirting the sky. The composition study, an "unknown" Port on the Mediterranean (38), represents a vast square tower, with domed turrets at the four corners, and a larger copula growing above the parapet crowning the central tower. Its witness to the imaginative ability of the painter, whose intense appreciation of colour also is evinced in No. 27, which supplies an interior perspective of the grained dark stone church of St. Laurent, Le Puy, crowded with chairs in artistic confusion, and mingled with sunshine, while deep-blue stained glazings in the recessed and sombre part of the church light up its shade by way of contrast. No. 20, a half-coloured Renaissance-like carvings, and a lintel over it, is described as "A Medieval Doorway," which we should have doubted, had not the Professor put it down in the Catalogue, against which we have, however, left our query mark. The Eglise des Zempiers, Luz St. Sauveur, Pyrenees (No. 11), stands in the market place of this old quaint mountain village above the gorge of the Gave, crossed by the Pont Napoleon, built in 1890. This Templar's sanctuary, 'midst the mountains looks more like a fortress, with its embattled walls and postern gate, beyond which is seen the belfry tower. The artist in this study seems to suggest its cool situation and unrequited, or half-dormant, life. It is surprisingly dexterous sketch, with the detail touched in without effort (No. 14) depicts the froufrou porch of Notre Dame at Louviers, N.W.

France, which may be described as a place of no longer of commercial consequence. The older part of the town is constructed of timber, and this rich Gothic church is mainly of 13th-century date, the splendid porch shown by Mr. Rimington being two centuries later—a perfect lacework of stone, in which the apotheosis of the flamboyant is realised. The nave of this church of Notre Dame is of great height, and is lighted by windows studded with beautiful stained glass. It would make a picture for the water-colourist as worthy of his skill.

WATER-COLOURS OF THE NEW FOREST DISTRICT.

Mr. Wilfred Ball, R.E., R.B.C., as a bright water-colour painter of subjects prettily rendered, and therefore eminently adapted to domestic decoration, is always refreshing and welcome, so that we are glad to see his ninety-two studies hung in the adjacent gallery at 148, New Bond-street, with the old Turnpike Cottages, Bucklands, "The Fisherman's Rest," near Lympington, and Hensley, Hants, where John Keble lies buried in the churchyard. Minehead Church carries us away into Somerset, far from the New Forest, and Alum Bay, in the Isle of Wight, brings to mind other delights of past holiday times. Moreover, Christ Church, "when evening was glowing with roseate light," furnishes Mr. Ball's brush with several studies, and this one (65) among the best; also, "Havily by the Solent" (89) recalls joyous times of early youth. "Coronation Day at Lympington" (14), with the bunting spanning the street, shows touches of colour not commonly seen in its sombre quietude. Where every study is bright, effective, and determined to please, it is hardly possible to single out instances other than by enumerating their subjects, and Mr. Wilfred Ball's work would colour any home, because they are so homely, restful, and pleasing.

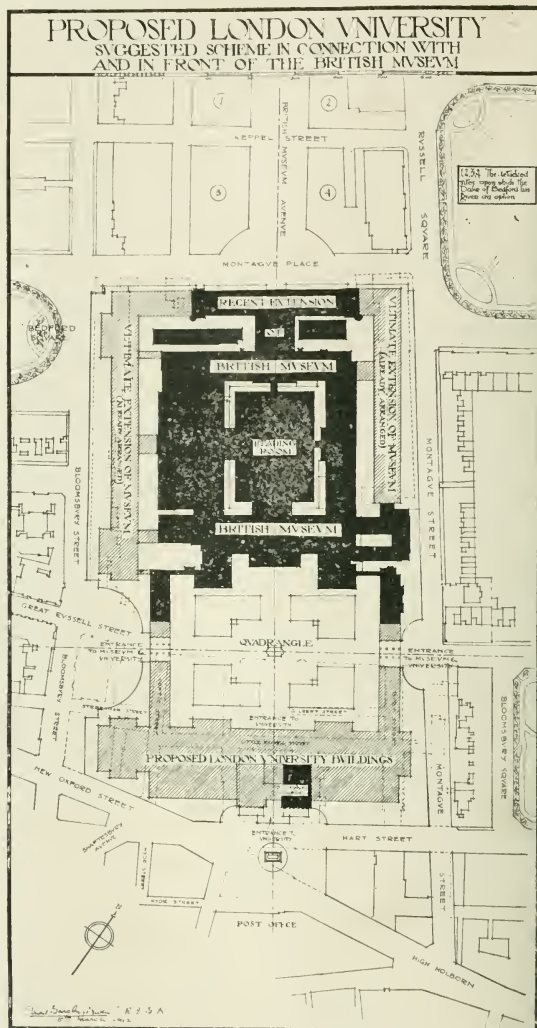
THE PROPOSED NEW LONDON UNIVERSITY BUILDING.

A proposal has been published whereby buildings for a reconstituted London University are to be erected on four detached sites at the back of the British Museum. As an alternative, I suggest their erection as one block in front of the Museum, in accordance with the accompanying plan.

In this the island area on which the British Museum stands is enlarged so as to afford ample space for these buildings adjacent to the Museum, with St. George's Church duplicated as a central feature, thus introducing a very delightful note in architectural treatment. This proposal would bring the University into direct relation with the British Museum. The site is large enough for a useful expansion, and the buildings erected upon it would very properly be the visible expression of the University as a great public institution, and would appeal to the imagination of the people. With the co-operation of the different authorities, this scheme should be realisable, the leasehold tenure of the property affected contributing to its gradual development.

The immediate necessity is for a liberal, well-considered scheme for University buildings. A start might very well be made on the area facing New Oxford-street, between Museum street and Bloomsbury-street, where the houses fronting the Museum need not be demolished for many years until the University buildings are almost complete, although the great quadrangle between the Museum and the University would not have its full significance until then.

The proposed quadrangle would show the buildings surrounding it to great advantage. It is as large as Bloomsbury square and should be one of the finest architectural courts in Europe. Through traffic would not be permitted, and the two great entrances, frequented by attendants, would maintain a sense of collegiate repose. A small open public square might be arranged central with the new buildings, at the juncture of New Oxford street, Hart street and High Holborn. The land abutting upon this is



mostly Crown property, which it should be possible to acquire on favourable terms. This open space would be convenient, and would indicate the importance of this educational centre.

The scheme would be a great permanent London improvement, and not only the London authorities, but the nation, might co-operate in its realisation. It would enhance the value and increase the security of the priceless national collections in the British Museum upon which millions of public money have already been expended. The Duke of Bedford, as freeholder and benefactor of the

improvements to the north of the Museum, might also be ready to assist in this great improvement.

DAVID PARCLAY NIVEN.

The church of St. Martin on the Strand, at Limerick, is in a dilapidated condition, and is about to be rebuilt from plans by Mr. Brian E. F. Sheehy of that city.

Plans are to be presented to Peterborough City Council for a block of two-roomed tenements letting at 1s. 3d. to 1s. 6d. per week. The tenements will be built as bed-sitting-rooms, with a kitchen range in each.

CURRENTE CALAMO.

We give prominence elsewhere to Mr. David Barclay Niven's suggestion for the better location of the proposed new buildings for the University of London, because we think it is a very admirable one, and infinitely more advantageous than the site already advocated. We gave our reasons for objecting to that site on this page in our issue of February 23, and nothing since has induced us to modify them. Mr. Niven's proposal would give ample space for all needful expansion, and we shall be surprised and disappointed if it does not commend itself to the University authorities and the generous donors who have already promised such munificent help. We need not add a word to the considerations Mr. Niven sets forth; we only ask they may be carefully studied by all concerned, and that the opportunity may not be thrown away. It is worth noting, perhaps, that at Wednesday's meeting of the University Senate, Sir William Collins said that no communications had been received regarding the scheme for the removal of the University headquarters to the site to the north of the British Museum. He had written to the Chancellor (Lord Rosbery) protesting against this ignoring of the Senate, and he asked the Senate to allow him to resign his office of Vice-Chancellor. At the request of the Senate, however, he withdrew his resignation.

The necessity for the intervention of the R.I.B.A. may be pretty well gauged from the proceedings of the Warrington Education Committee last Monday night. It was reported to the Committee that the Royal Institute of British Architects and the Manchester Society of Architects had written suggesting that the Committee should allow competitive plans for a new Oakwood-avenue Council school to be assessed by a professional architect, and stating that members of the Institute would not be allowed to compete if the committee themselves insisted on judging the plans. The chairman said the committee's decision, if adhered to, would keep the cream of the profession from competing or make members of the Institute liable to be struck off the roll if they competed. Several members thought they were competent to judge their own plans, especially with the assistance of the surveyor and the director. Mr. Jolley objected to a committee of amateur architects settling so important a matter, and as he did not believe in "knob sticks" of any kind, moved that the minute be referred back. Mr. R. T. Fairclough (Chairman of the Sites and Buildings Committee) said the Institute had no right to dictate to the committee as to what they should do. It was decided by a large majority to adhere to the original intention not to employ a professional assessor. If, after this repeated defiance, any architect takes part in the competition, he will fully deserve the treatment he is likely to get.

The Smoke Abatement Exhibition at the Royal Agricultural Hall, which Sir William Richmond opens to-morrow, is one that has a more than ordinary claim on public attention at the present juncture. Most of us have had good reason to economise coal lately! If for no other reason, it is time we ceased to waste it in purposeless and destructive smoke! The miners will get to work again, and most of us, we suppose, will forget our lesson, till some day it is taught us with an emphasis we shall

not readily forget! Of all the propagandists who challenge our attention, the Coal Smoke Abatement Society, under whose auspices this exhibition is held, seems to us to deserve the support of every reasonable human being in a greater degree than any other organisation we can call to mind, and the conferences and lectures next week at Islington should attract big audiences. Sir Arthur Church is to discourse on the action of coal smoke on building stones and mural paintings. Dr. Rideal on the effects of smoke on metalwork, and many others will deal with its general and deadly effects on life and health. The exhibition seems a good one, and is classed under seven sections.

The Playgoers' Club moves this week into its new home in Cranbourn-street, which we fully illustrated and described in our issue of June 23, 1911. Few Metropolitan clubs offer their members more material advantages than the Playgoers now enjoy, or such a pleasant and varied companionship, embracing men of all vocations united by their interest in the drama. Certainly no other club has its own railway station downstairs, from which any place in the kingdom can be reached with a minimum of time and trouble. Located in the very heart of theatre-land, and practically in the centre of the metropolis, the one possible contingency that can threaten the club's enjoyment of its present manifold advantages will be the rush of applications, raising its membership once more to a number beyond its capacities. Fortunately, admirable as is the accommodation in every way at Cranbourn-street, the club's amenities are not confined to its own premises. It has raised funds during the last two or three years to send and take no less than 136,000 poor children to the theatres during the pantomime season; so that Bernard Shaw's somewhat captious objection that the Club "lures" players away from the box-office seems a little premature. Lectures, dances, concerts, and dramatic performances are enjoyed frequently throughout the season by the Club's members without extra charge, thanks often to the kindly co-operation of many of those whose influence is predominant in stage quarters, and always to the untiring industry of its active committee and their most genial of secretaries, Mr. James Sharpe, to whom applications should be made at 29, Cranbourn-street, W.C., by any readers desirous of belonging to the best and brightest Bohemian brotherhood in London.

We think Sir Arthur Boscawen's Housing of the Working Classes Bill, which was read a second time last Friday, hardly, perhaps, deserved Mr. Wedgwood's ridicule of the Bill as "a scheme for the better caging of the animals of the Zoo," or all Mr. Burns's picturesque derision of its ideas, which he attributed to "certain economic bedfellows from East End settlements." On the other hand, we confess we share Mr. Burns's distrust of the new "peripatetic Commissioners on wheels," who are joining the grand army of the great well-paid, which is swelling the Estimates. Ere long it will be as difficult to find a man who is not a Commissioner of something as a Frenchman without the ribbon of the Legion of Honour in his buttonhole. The financial side of the scheme is also weak. The Imperial Exchequer is to come to the relief of local authorities who may be deterred from carrying out housing reforms by financial difficulties to the extent

of half a million a year, and the *slum* landlord may quite likely find the new scheme profitable to himself, although he may wince at the more stringent conditions under this than previous Bills.

Is gas "a wild beast"? We fear many will say "yes" if the answer depends on its tendency to escape! Most people who move into a fresh house of any age, where gas has been used by several successive occupants, know the worry experienced in tracing escapes due to worn-out or accidentally broken pipes. Are they liable for damage done by escapes? The Lambeth County Court Judge is considering the matter in reference to a case tried last Friday, in which William Larking, Batavia-road, New Cross, claimed £50 damages at Lambeth County Court from William Bussell, of the well-known Elephant and Castle, for injuries sustained in a gas explosion in a part of the public-house. Mr. Charles Doughty, for the plaintiff, argued that as defendant had bought the gas on his premises and had not kept it safely, the position was analogous to that in which a wild beast escaped from custody. Defendant was therefore liable. Plaintiff alternatively claimed damages for alleged negligence, but Judge Parry decided for the defendant on this point, on the ground that the escape was not due to any action on his part.

"Then," said Mr. Doughty, "it is the neatest case which has ever arisen as to whether gas is a wild beast. I can only proceed on the assumption that if it escapes the owner is responsible. It has been laid down that electricity could be looked upon as being in the same position as a wild beast in this respect." His honour questioned whether negligence could be laid upon the owner of the "wild beast" if it escaped through the negligence of others than himself. Mr. Doughty submitted that if the judge lent a lion to the Zoological Society, and through their carelessness it escaped, he would have to pay for the person eaten. The judge reserved his decision, which will be awaited with interest. The danger and legal risk to all of us is infinitely greater than many people imagine. We have still lively memories of personal peril and many months of anxiety when we were blown up in the Strand years ago. The Gas Light and Coke Company paid the mere cost of reinstatement then, but not a farthing ever reached us to make up for interruption to business and quite a year's worry till it was settled who was to reinstate.

Such changes as there are in the Civil Service Estimates are in favour of the building trades. The total, £3,638,080, required for the current year, compared with £3,466,686 last year, shows an increase of £171,384; £215,300 will be required for Labour Exchange and insurance buildings, as against £140,000, an increase of £75,300; £71,300 will be required for royal palaces, a decrease of £1,400; £50,800 for the Parliament buildings, a decrease of £3,370; and £125,700 for royal parks and pleasure gardens, a decrease of £7,833. Most of the money, anyhow, will be spent on material and labour, though in few cases, probably, will architects benefit.

A useful half-crown book on the Income-tax, by F. B. Leeming, is published by Effingham Wilson, 54, Threadneedle-street,

It takes some helping nowadays to hoodwink one's own agent. Mr. Lloyd George, and some of his advertising "income tax reclaimers" are not of much use. Mr. Leeming is fair and reasonable, and his hints will be of service. He puts his finger crucially, on p. 95, on the misused Finance Act of 1910 has played with the building trades. We often wonder, giving Mr. Lloyd George all possible credit for being an able screw driver, how he failed to perceive that the charge of 20 per cent on the price made by sale of house property under Section I was going not merely to defray his own immediate purpose, but to cripple adequately the second greatest industry in the country.

CISTERCIAN ABBEYS IN HAMPSHIRE.

Before the London Hampshire Society at the Hotel de Court Hotel, Holborn, Mr. J. Hantwell-Cope gave a lecture last week on the Cistercian Houses in Hampshire. Mr. John Butler occupied the chair. The lecturer remarked that of the forty three monastic institutions in the county, four belonged to this order, namely, the abbey of Beaulieu, Netley, and Quarr, with Winchley Priory. Scouting these, the Benedictine Order with a small number of monks, Robert, Abbot of Mellesme, in 1098, founded, at Citeaux (the Roman Cistercium), near Dijon, a new religious order. Simplicity, exactitude, and earnestness were to be its guiding principles. The early rules of the Order emphasised these. The buildings to be away from towns and in a form of structure; low, two towers of wood, containing two bells, each not heavier than one man could pull, and to be used only at a time; no colouring or pictures, save that of the Saviour, on the walls, and the windows of white glass; their dress white. As numbers increased, twelve monks and a selected abbot were to leave the parent abbey, and to found a new one. The Order spread and flourished in France. Alberic and Stephen Harding, being responsible for forcing the movement forward. Including the Isle of Wight in the county, Quarr Abbey, founded in 1132, was the first settlement of the Cistercians in Hampshire. This was briefly alluded to, while the Order in the county, had been dealt with in a previous lecture. There remained Beaulieu and Netley to the former of which Mr. Hantwell-Cope devoted the remainder of his paper. King John, urged by cowardice, superstition, and a spasm of repentance, was responsible for its foundation, and spared nothing in the realisation of his plans. In 1204 he began building, and provided endowments for a splendid structure, hoping that his remains might rest peacefully within its walls. Not the regulation twelve, but thirty monks and an abbot were brought direct from Citeaux to form the community. Stone from the Isle of Wight was used lavishly, tradition stating that it was carried all the way. Forty-two years elapsed before the magnificent plan of the building, 356ft. long and 187ft. wide, was completed. The interdict laid upon the whole country by the Pope in 1208 caused a delay of six years, but on its removal the work was resumed, and slowly continued. John's successors gave liberally. Henry III. allotted for ten years the profits of the Royal salt farm to the abbey. The profits of the salt works, arising from breeding New Forest ponies. In 1246 the building was completed, and dedicated with great pomp and ceremony, further Royal benefactions being showered upon it. The Cistercian community entered upon a long period of prosperity and influence. It had the right of perpetual sanctuary, and the right of pardon for forty days. The Act for the suppression of monasteries brought about its fall as a religious house. At the time of its surrender there were no less than thirty-two monks and servants, who were allowed, on petition to remain for some time. In 1537 Thomas Stedham, the abbot, handed the Abbey over to the King. Netley, which had sprung from Beaulieu in 1237, had been

previously surrendered under the Act suppressing the smaller institutions.

Mr. Frank Spier, Mr. James Jesse, Mr. Cuten, and Capt. Willmott took part in the discussion which followed.

RECENT EXCAVATIONS AT HOLYROOD.

On Saturday last the members of the Scottish Ecological Society visited Holyrood Palace and Chapel to hear from Mr. W. T. Oldrieve, H.M. Office of Works, some particulars regarding the recent researches at the chapel. The company assembled in the picture gallery, where Mr. Oldrieve exhibited plans showing the original foundations of the eastern parts of the Mediaeval abbey church and of an early Christian church, which appears to have existed long before the abbey was founded. The general form of the Mediaeval church, Mr. Oldrieve said, had for long been thought by ecclesiologists and antiquaries to have been cruciform, this view being supported by the most ancient views which exist, notably by the 1544 sketch of Edinburgh from the north-east, now preserved among the Cottonian manuscripts in the British Museum. In this sketch a church was clearly indicated having nave with two western towers, a choir, and north transept. After giving a historical survey of the Abbey down to the time when the roof collapsed in 1768, Mr. Oldrieve explained that, the sanction of His Majesty having been obtained, the work of excavation was undertaken in 1910 and 1911, when gradually and laboriously the foundations of the church were traced and the general plan unfolded under the careful superintendence of Mr. R. B. Robertson, clerk of works. It would be seen from the plan that the length of the choir was originally about 108ft. 6in., as compared with 128ft. 10in. in the case of the nave, and adding 30ft. as the width of the crossing, the total internal length of the abbey church was accordingly 267ft. 4in. The internal width of the choir was about 76ft., as compared with 61ft. 3in. in the nave. The greater width of the choir was accounted for by there having been a double aisle upon the south side. No traces of foundation could be found of a south transept, though that was not to be taken as conclusive evidence that no south transept existed. Two underground vaults were found, one of which had been left exposed. He thought it probable that the vault had been built after the demolition of the choir. When opened, no human remains were found therein. The other vault also was found empty.

THE CHAPTER HOUSE.

Very fragmentary remains of the chapter-house foundations were found, but there were of considerable interest, deciding position, form, and extent of the structure. The central pillar was found to be octagonal, 5ft. 4in. in diameter, lying about 44ft. eastward from the nave, and about 48ft. southward from the exterior face of the south wall of the choir. Only very fragmentary remains of the masonry of the main walls of the chapter-house were found, but these, together with the three bases of the buttresses on the eastern side, indicated the form of the plan as that of an irregular octagon, the interior dimensions being about 45ft. on the longer axis, lying north-west and south-east, and about 40ft. on the shorter axis, lying north-east and south-west. It seemed probable that the chapter-house was attached by a short connecting passage to the choir, since the completion of the plan would bring the north part of the building quite close to the wall of the choir. Lying within the area of the choir were found the foundations of what he thought must have been the church of the Early Christian settlement. His reasons for this conclusion were, first, the limited dimensions of the building and the width of the foundations, indicating a substantial structure such as an early church; second, the style of masonry used in the foundations, i.e. the nature of the work, and the fact that the foundations were evidently of much earlier date than those used in the Mediaeval church

foundations, which were to a much greater extent roughly squared; third, the proximity of the group of admittedly Early Christian burials upon the south side and near the east end of the structure confirmed his opinion. The width externally seemed to have been about 21ft.

EARLY CHRISTIAN INTERMENTS.

Mr. Oldrieve went on to tell of the finding of early Christian interments, about 25 in number. Three under the site of the High Altar in the Lady chapel are almost certainly those of abbots of the abbey. Elias, tenth abbot, who drained the marshes about 1224, was recorded to have been buried under the high altar in the Lady-chapel. In order to identify the position of the ancient interments, a small cross had been cut in the turf and filled with gravel over the centre of each grave. An interesting fragment of ancient causeway leading to the church was uncovered at the north-east corner of the choir. Mr. Oldrieve concluded by expressing the hope that those students of history whose work was so useful in searching ancient records for historical facts might some day discover what would further elucidate these discoveries of the past.

ARCHITECTS' SCALE OF CHARGES IN QUEBEC.

As the outcome of recent representations to the Provincial Government, the Lieutenant-Governor-in-Council has approved of a new schedule of minimum fees for the Province of Quebec Association of Architects. The Association asked for a flat commission of 5 per cent, in place of 3 per cent, on the sum of 50,000d., to 150,000d., and 3 per cent. over that amount. The following is the new list of commission for services rendered by members of the Association:—

No. 1.—The architect bases his professional charges upon the entire cost to the owner of the building, when completed, including all the fixtures necessary to render it fit for occupation, and is entitled to compensation for furniture and other articles designed or purchased by the architect.

No. 2.—If any of the material or work used in the construction of the building be already upon the ground, or come into the possession of the owner, the value of said material or work is to be added to the sum actually expended upon the building before the architect's commission is computed.

No. 3.—Travelling expenses are to be paid by the client.

No. 4.—The charge per day to be made by an architect shall depend on his professional standing, but the minimum charges shall be 15dol. per day.

No. 5.—In all cases, where an architect is subpoenaed professionally as a witness in court, he shall be entitled to a fee of 4dol. per day of attendance.

No. 6.—Drawings and specifications, as instruments of service, are the property of the architect.

No. 7.—In consideration of the charges mentioned hereafter, the architect shall prepare drawings and specifications, and provide copies of the drawings and specifications for the use of the contractor, but he shall be entitled to have all the originals and copies returned to him when the work shall be completed.

No. 8.—For professional services in connection with all buildings, comprising preliminary studies, complete plans, specifications, details, and superintendence, the architect shall be entitled, except as hereinafter provided, to a commission of 5 per cent on the total cost of the building when completed.

No. 9.—For all works of addition, alteration, or restoration, the architect shall be entitled to a commission of 7½ per cent on the cost of the works.

No. 10.—For all other works of special character, such as for monumental work, fittings, and furniture, and for decorative work, stained glass, and such like, the architect shall be entitled to a commission of 10 per cent on the total cost of the work.

No. 11.—Partial charges, in the case of

sub-division or discontinuation of the work shall be as follows:—

For preliminary studies (sketches), one-fifth of the above charges.

For complete plans and specifications, including the preliminary studies, one-half of the above charges.

For details, one-fifth of the above charges.

For superintendence of the work, when drawings are not furnished, 2½ per cent. on the cost of the works.

No. 12.—Where engineers or other experts are employed by the owner to co-operate with the architect for certain works (as for heating, ventilation, electric work, etc.), the architect shall receive for his commission 2½ per cent. of the cost of such work.

No. 13.—For valuation of property requiring measurement and detail estimate, where the value shall not exceed 5,000dol., the commission shall be 1½ per cent. Where the value exceeds 5,000dol., the commission shall be 1½ per cent. on the first 5,000dol. and 1 per cent. on the remainder.

No. 14.—In case the owner of the building should require the services of the architect to prepare quantities, or for measurement of the work done or to be done, such payment shall be paid outside of the regular commission at the rate of 2 per cent. on the valuation of the cost of the work.

No. 15.—Should the owner desire to have a clerk of the works in the building, the said clerk of works shall be engaged and be under the direction of the architect, and shall be paid by the owner.

NATIONAL ART COMPETITION.

The Board of Education issued last Friday a list of students rewarded in the National Art Competition, 1911, with the report of the examiners on the selected works of schools recognised under the regulations for technical schools, schools of art, and other forms of provision of further education in England and Wales, and some reproductions of the work of the students.

The following are the awards of gold medals:

Birmingham, Margaret-street School of Art.—Thomas Cuthbertson, designs for gold necklace and cross and two rings, enamelled and set with stones.
Hammersmith, L.C.C. School of Arts and Crafts.—Christine Gregory, modelled torso from life.
Ipswich, L.C.C. Camden School of Art.—Jean Campbell, design for enamelled silver pot-pourri jar, set with amethysts; Edward Joseph, design for necklace and pendant in silver, gold, and enamel, set with stones.
Haverstock, L.C.C. Clapham School of Art.—Henderson, quick, shaded drawing of a figure from the nude.
Macclesfield School of Art.—Robert B. McCoy, designs for wood and metal tapestry hanging.
Nottingham School of Art.—William H. Wright, modelled and carved design for fireproof.

Warrington School of Art.—Sydney W. Chetwode, study of historical costume.
Dulwich, Metropolitan School of Art.—Harry Clarke, designs for stained glass; Albert G. Power, model of a figure from the nude.

The Princess of Wales's Scholarship of £75 has been awarded to Christine Gregory.

The number of works submitted for the competition was as follows:

England and Wales.—11,164 works from 221 schools of art and branch schools of art, 321 works from 29 art classes, 944 works from 63 evening schools, 113 works from two technical institutions, two works from one day technical class.

Scotland.—56 works from seven schools.

Ireland.—489 works from 14 schools.

Jersey.—49 works from one school.

New Zealand.—45 works from three schools.

Total, 13,153 works submitted by 349 schools and classes.

Ten gold medals, 162 silver medals, 261 bronze medals, 560 book prizes, and 991 commendations were awarded.

A marble statue of Lord Justice Fitzgibbon is about to be erected in St. Patrick's Cathedral, Dublin. The sculptor is Mr. Albert Bruce Joy.

* These most interesting studies appeared in our issues of Nov. 3 and Nov. 24, 1911.

BEAVER BOARD.

A new material which has met with much success in the States has just been introduced by the Beaver Co., Ltd., Dept. E, 16, Eastcheap, E.C. "Beaver Board," as it is called, is made of pure wood fibre pressed into panels of uniform thickness, with a beautiful pebbled mat surface admitting of artistic decoration. It is nailed in panels to the studs of new rooms or directly over the existing plaster, in old rooms the seams being covered with decorative strips which give that artistic panel arrangement so popular in the modern home. It is easily handled, and can be readily cut by a fine saw, sharp knife, or chisel. Rooms finished in Beaver Board are rendered most attractive and restful, because of its adaptability to artistic decoration, added to which, it is economical; it suits any kind of building, retards heat, cold, and sound, and does not crack or deteriorate with age.

We recommend architects and others to send a card for the "Beaver Booklet," illustrating its many advantages. It will be sent free.

The late Mr. James Redford, F.R.I.B.A., of Seafiel, Northenden, Cheshire, left personally amounting to £15,252.

The Tonbridge Urban District Council are considering the proposed Tonbridge ground, with regard to the pathways on the mound. They hope shortly to have the benefit of the advice of a specialist in military architecture, upon the discoveries which have been made.

Some important street improvements are to be carried out in Dowsbury, Bradford road, from the north end of Foundry-street, to where it joins Northgate, is to be widened. Fourteen shops are to be pulled down, and a small pile of old buildings known as the Flat Iron property is to be demolished.

Next term Jesus College, Cambridge, intends to commemorate one of its earliest and best known men in the person of Thomas Crammer, to whom a memorial is being erected in the chapel. The artist is Mr. A. Bruce Joy, and the Bishop of Ely, the Visitor of the College, will give an address at the unveiling.

A movement has been started to raise £2,000 for a bronze statue in the Anglican Cathedral grounds at Melbourne to Matthew Flinders, the explorer. Flinders was a daring English navigator, who surveyed a great portion of the Australian coasts at the end of the 18th and beginning of the 19th century.

The St. Helena education authority, having bought an open space, together with a number of shops and dwelling-houses, in Liverpool-road, in the heart of the town, have prepared plans for a large new elementary school to take the place of the old Ragged School. The Board of Education will be asked to sanction the borrowing of £16,000, the cost of building the school.

Mr. William Manuel, S.S.C., hrs. on behalf of the family, presented the Government with a portrait in oils of his father, Mr. Peter Manuel, who acted as clerk of works at the Royal Hospital, Edinburgh, during its erection by the distinguished architect, Mr. W. H. Playfair, between 1842 and 1852. During the visit of Queen Victoria and the Prince Consort to the impeded hospital in August, 1852, Mr. Manuel conducted the party over the building. He died in 1859.

Mr. P. M. Crosthwaite, M.I.C.E., represented the Local Government Board at the inquiry at St. Andrew's, into an application of the urban district council for sanction to borrow £41,019 for the purposes of sewerage, being the estimated expenditure on part of a scheme prepared by Mr. C. J. Lomax, C.E., engineer in charge, by which it was claimed the storm water outfall would be transferred from near the pier to a point near the northerly end of the town. In connection with this pumping-station would be erected; also ventilating shafts.

Mr. Edison's method of building houses of poured concrete has been further improved upon by Dr. Roushchance of Toronto. He has designed houses that are being erected by The Ottawa Concrete Homes Company, Limited. They will be built of poured concrete, and will have perfectly continuous cavity walls. The company is going into the matter, says the *Contract Record*, with a view to producing variations in design and finish so as to make them attractive not only from a utilitarian standpoint, but also from that of artistic appearance.

Building Intelligence.

BIRMINGHAM.—The demolition of the offices of the Birmingham Canals and Navigation, at the corner of Broad-street and Suffolk-street, shortly to be entered upon, will remove from Birmingham one of its most picturesque buildings. The site on which the buildings stand is leased by a London syndicate, and the canal offices and their arches will give place to new business premises. On the site, which has a frontage from the Britannia Buildings to Curzoo Hall, with a uniform depth of 150ft. from the street line, will be erected a building of several stories, having a stone facade, with motor show-rooms on the ground floor, and suites of offices above. There will be four or five motor show-rooms, each with a floor capacity of between 2,100 and 2,400sq. ft., and it is estimated the building will cost about £60,000. The plans are practically completed, and the demolition of the existing buildings will begin very shortly. A new approach to the canals and wharves will be provided.

ROCHDALE. The board of management of the infirmary have accepted the recommendation of the local building sub-committee, and adopted the plan and design submitted by Mr. Hugh Healey, A.R.I.B.A., of the firm of Messrs. Horsfall and Healey, Rochdale and Manchester, subject to minor alterations, which they discussed the other day with Mr. Pole, of London, who was a partner of the late Mr. Alexander Graham, F.S.A., the assessor in the competition in which Mr. Henry Wood was a competitor in 1907. When the full extension is completed, accommodation will be made for 28 more beds than are being provided in the present scheme. Provision of more bedrooms for nurses and of a new nurses' sitting room will be made by extending the nurses' home on the south. A new kitchen department will be built, with servants' quarters over. There will also be a rearrangement of the medical officer's quarters and of the general offices, and a new committee room will be provided. In the lower corner of the site adjoining Whitehall-street will be the mortuary, the boiler-house, and the laundry.

The tower of Sandiway Church, Cheshire, which was stopped for want of further funds at the height of 28ft., is now to be carried to a height of 42ft. 6in., designed by the late Mr. John Douglas, F.R.I.B.A., of Chester. The work will be carried out by Mr. Clegg, builder, under the direction of Mr. Minshull, of Chester.

The city council of Canterbury have under consideration a recommendation by the irrigation works committee to seek sanction for borrowing £2,500 to provide bacteria filters and beds, from plans prepared jointly by the city surveyor and the superintendent of the irrigation works.

The Edinburgh Sir Walter Scott Club have erected in Contin Church, near Sythpeffer, a tablet to the memory of William Laidlaw, a friend and amanuensis of Sir Walter Scott, who is buried in the churchyard. The tablet, 21½in. by 18in., which was designed by Mr. J. D. Cairns, architect, George-street, has been cast in bronze by Messrs. Wm. Bryden and Sons, George-street. It is surrounded by a border of Vert Eglé marble.

On Monday afternoon a new theatre, built by Mr. Louis D. Dickson, Edinburgh, was formally opened at 8 o'clock by Provost Grant, in the presence of a large audience. The theatre is situated in the heart of the town. Circular in shape, the building consists of two stories. The area has accommodation for 500, and a horseshoe gallery for another 300. The stage is 60ft. square. The cost of the building has been £1,500.

Mr. Malet, an inspector from the Local Government Board, attended at the parish hall, Thorpe St. Andrew, Norwich, on Wednesday week, and held an inquiry in respect of an application by the rural district council of Blythburgh to leave to borrow £10,750 for purposes of sewerage and sewage disposal in Thorpe St. Andrew. Mr. Arthur J. Martin, M.I.C.E., attended on behalf of the district council and explained his plans for the proposed scheme.

PROFESSIONAL AND TRADE SOCIETIES.

ARCHITECTURAL ASSOCIATION OF IRELAND.—A general meeting of the above society was held on Tuesday, the 19th inst., in the Lecture Hall, 13, South Frederick-lane, Dublin. The president, Mr. Page L. Denson, M.R.I.A.I., occupied the chair. Professor C. H. Reilly, M.A., of the Liverpool University, read a paper on "The Monumental Qualities in Architecture," which was illustrated by numerous lantern-slides of the principal buildings of Ancient Greece and Rome, and also of many modern buildings in America.

THE ARCHITECTURAL ASSOCIATION ATHLETIC CLUB SMOKING CONCERT.—This concert, which last year proved such a great success, will be held in the Pillar Hall, Victoria Station Restaurant, on Tuesday next, March 26, commencing at 8 o'clock. Full particulars and tickets, 2s. 6d. each, may be obtained from C. G. Boucher, 40, Great James street, Bedford-row, W.C., and at the A.A. Office.

GLASGOW INSTITUTE OF ARCHITECTS.—A meeting of the newly-elected Council of the Institute has been held, when the following office-bearers were elected: President, Mr. Alexander N. Paterson, M.A., A.R.S.A., F.R.I.B.A.; vice-presidents, Messrs. J. K. Hunter, F.R.I.B.A.; Charles R. Mackintosh, F.R.I.B.A.; and John Watson; auditor of professional accounts, Mr. John B. Wilson, F.R.I.B.A.; secretary and treasurer, Mr. C. J. MacLean, writer, 115, St. Vincent-street.

INSTITUTE OF CLAYWORKERS.—The sixteenth annual meeting of the Institute of Clayworkers, which includes among its members representatives of the principal industries engaged in brickmaking and kindred industries in the United Kingdom, was held in the Building Exhibition at Rushmore, Manchester, on Tuesday. Councillor James Heaton, of the Ravenhead Brick and Pipe Works, St. Helens, was elected president, and in his address referred to the troubles which they had had to pass through owing to the state of unrest in the industrial world, particularly the railway strike of last year and the present coal strike. He pointed to the increased burdens which the industry would have to bear in connection with the National Insurance Act, and possibly increased charges for transport and the demands of labour. Mr. G. W. Andrews, the retiring president, read a paper advocating the closer association of brickmakers for the purpose of dealing with questions which affected them. Major Blizzard, of Hanley, reviewed recent legislation which affected the industry, and agreed that co-operation was necessary. A discussion followed, in which many members advocated the formation of district associations, which should regulate prices and produce, and ultimately the affiliation to the institute, become federated into a national organisation. It was agreed that efforts should be made in this direction.

MANCHESTER SOCIETY OF ARCHITECTS.—At the last meeting of this Society Mr. H. H. Statham lectured on "Architecture Considered in its Relation to Music." Mr. Edgar Wood was in the chair. In discussing the construction of buildings for music, Mr. Statham drew attention to the resemblances between the arts of music and architecture. The parallel between them, he said, was an interesting one and not altogether unimpressive, though it should not be pushed too far. The most essential resemblance was that they were both arts which dealt with abstract qualities of proportion and balance of parts, not with the direct material of nature. Music was the same element in which they differed from sculpture and painting. Painting and sculpture were based upon the expression of design and sentiment in the terms of natural forms, while architecture and music were based on qualities which underlay the physical forms, on line and proportion as the great qualities of nature. Music was called metaphysical art. Music was line and proportion expressed in time, architecture the expression of line and proportion in

space. A quality which the two arts had in common was that of rhythm, the succession of impulses at exactly equal intervals, in the time space. In music the rhythm was a more inherent quality than in architecture, for the very existence of musical tone depended on the rhythmic succession of vibrations. There was, however, an instructive parallel between architecture and music, in that all musical compositions which were stately and grand in proportion were marked by a regular recurrence of accent at equal periods of time, and the same was true of architecture.

PHOTOGRAPHIC RECORDS OF SURREY.—The annual meeting of the Society of the Photographic Survey and Record of Surrey was held on Saturday at Reigate, Mr. F. E. Lemon, the Mayor, presiding. Mr. Topley, the treasurer, referred to the valuable work which had been done by the various sections during the year, and said that if anyone would inspect their collection at Croydon he would have some idea of the time and expense which had been spent by the members in collecting a photographic record of the features of the county. The opinion was expressed that an attempt should be made to obtain a record of all the churches in Surrey, and it was stated that members were engaged in a survey of Old Wandsworth and in printing records of all the churches in South London. A lantern lecture on "Old Reigate," by Mr. E. Penfold, A.R.I.B.A., with an address on the work of the survey, followed.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—Mr. F. E. P. Edwards, F.R.I.B.A., the city architect, who went to Rome last autumn for the International Congress of Architects, gave, on March 14, a formal report on the congress, and then went on to give an illustrated lecture on the Italian city he visited. There were magnificent pictures of the architecture in Genoa, Pisa, Florence, Venice, and Milan, as well as of Rome, and Mr. Edwards added a good many personal touches to his descriptions. Speaking of a street-improvement scheme in Rome, he said it had been under consideration 300 years—a statement which seems to excuse the slow way in which some Sheffield schemes are dealt with. The vice-president, Mr. F. Watson, F.R.I.B.A., occupied the chair.

SURVEYORS' INSTITUTION.—Owing to the National Telephone Company's extension of the service to the Surveyors' Post Office, the Institution's number will for the future be Victoria 5322. The professional examinations will be held on March 25 and following days. The entry list closed on September 30 last. The Council have accepted an invitation from the Nottingham and Lincoln Committee of the Institution to hold their twenty-fourth meeting at Nottingham, on May 30 and 31. Particulars will be issued later on.

"THE GOTHIC CHANCEL AND ALTAR."—This was the subject of a lecture given before the members of the Edinburgh Architectural Association in their rooms at 117, George-street, on the 13th inst., by Mr. F. C. Eeles, F.R.Hist.S., Mr. Edward C. H. Maidman, L.R.I.B.A., vice-president, was in the chair. Mr. Eeles said that the arrangement of the chancel and altar in Scottish churches during the period of Gothic architecture was practically the same as was in vogue in England with the exception of a few modifications, due most probably to Netherlands influence. The apsidal termination common in Scottish churches of the fifteenth century was an instance of this, and was very distinct from the square ended churches in England at the time. Similarly the practice of reserving the Eucharist for the sick in a "Sacrament House" or ornamental umbrin in the wall on the north side of the altar, instead of suspending it over the altar in a hanging pyx in the English way, is a Scottish characteristic which was probably suggested by Flemish usage. Reference was made to the development of the great screen between nave and chancel, which was perhaps the characteristic feature of Scottish Medieval churches. Mr. Eeles

described the Medieval altar and all its ornaments in great detail, pointing out that its arrangement might be called a combination of richness with simplicity. Nearly sixty lantern slides were shown, many of them reproducing contemporary pictures of the thirteenth, fourteenth, and fifteenth centuries. Mr. John Watson, F.R.I.B.A., moved a vote of thanks to the lecturer, which was supported by Sir Robert Lorimer and others.

YORK AND YORKSHIRE ARCHITECTURAL SOCIETY.—A paper "Sketching" was read before the above society on March 13 by Mr. Wm. Whitehead, A.R.I.B.A., Mr. A. B. Burleigh, Licentiate R.I.B.A., president, being in the chair. The author dealt with the uses of sketching, the mediums and styles, composition, and what to sketch. There are times in everybody's life when they desire to put some of these impressions and ideas into more material form, and the mediums, the pencil, pen, and water-colours are the materials which the architectural sketcher uses.

The pencil especially should be mastered, and a directness and facility of expression attained. Water colour sketching is probably the most fascinating of the three. Composition in sketching architectural subjects is as necessary as in landscape and other subjects. Concentration, grouping, and contrast require consideration, but detail should not be sacrificed for effect. Lastly, that to sketch is everything that is likely to be useful or is interesting. A large collection of sketches formed an interesting exhibition and illustrated many points in the lecture. A hearty vote of thanks was given the lecturer, on the proposition of Mr. Geo. Benson, A.R.I.B.A., seconded by Mr. S. Needham, Licentiate R.I.B.A.

The corporation of Hull have decided to proceed with the extension of the tramways to Beverley-road and Spring Bank West.

Official statistics which have been forwarded to Mr. T. A. Coghlan, the Agent-General for the State of New South Wales, show that during 1911 no fewer than 67 new buildings were completed in Sydney and suburbs, and many more were started. The value of the buildings erected is £3,825,382, estimated to produce a total annual rental of £410,294.

At the last meeting of the Edinburgh and District Water Trust a letter was read from Messrs. J. and A. Leslie and Reid, C.E., intimating their acceptance of the appointment of engineers to the Trust. Instructions were given the trustees to prepare plans for the construction of additional works, including an area of 550 square yards at Fairmilehead.

A new hall for the Order of Foresters is being added to their house on Rutland-square, Dublin, from the plans and specification of Mr. W. A. Scott, A.R.I.B.A., 45, Mountjoy-square, in that city. It is built with bricks, and faced with red brick, and is of the size of 100 ft. by 30 ft., and it has a large accommodation 20 ft. wide and 24 ft. deep. The cost will be about £1,500.

To the parish church of Remton, N.B., the choir of which has just been reopened after refurbishing and decoration, there have been provided three memorial stained-glass windows, one depicting the Last Supper, which will fill the east end of the church, and the ends of the north and south transepts will be occupied by the subjects "The Baptism of Jesus," and "The Paterson, of Glasgow."

The town council of Pole have adopted a scheme prepared by the borough surveyor, Mr. J. N. Smith, for the improvement of portions of High-street and Towngate-street main-roads by the laying down of wood blocks, including alterations of footways and surface-water drains where necessary, consequent upon the improvements in the carriageways about 12in. more. The estimated cost is £11,835.

A few weeks ago a Roman coffin was discovered on the Eastleigh Urban District Council's estate at Chickenhall, about 18in. below the surface. The coffin is very massive, being about 8in. thick. Its inside measurements are 3ft. 10in. by 18in. and the outside about 22in. more. Some human bones were found in the coffin, which was covered with a lid. The coffin has been placed for exhibition in front of the urban district council's offices at Eastleigh. So far from the place where the relic was found there appears to be the remains of a Roman villa, into which an investigation is to be made.

COMPETITIONS.

BANNED COMPETITIONS.—The Council of the Liverpool Architectural Society requests all members to refrain from competing in the following architectural competitions, the conditions for which are unsatisfactory:—Warrington Schools, Llandudno Police Buildings, Ormskirk Golf Club.

OAKWOOD AVENUE COUNCIL SCHOOLS, WARRINGTON.—The following notice has been sent to all its members by the Architectural Society of Architects:—"The promoters refuse to modify the conditions they have sent out, and say that it is not their intention to employ a professional assessor. I am instructed by the Council to inform you that these conditions are unsatisfactory to the Council, therefore members of this Society must not submit, either directly or indirectly, any designs in the above-mentioned competition.—Yours faithfully, Arthur S. Prewis, Secretary." The Royal Institute of British Architects has also notified its members to the same effect. Most architects of recognised standing will therefore refrain from submitting plans in this competition.

SHANKLIN, I.W.—Mr. G. L. Thorne, of Athley-road, Southampton, has been successful, out of fifty-three competitors, in securing the premium offered for the best design for Liberal club premises at Shanklin. Mr. Thorne is a member of the staff of Messrs. Weston and Burnett, of 24, Portland-street, Southampton.

New council schools were opened at Farely, near Scarborough, last week. The contractors were Messrs. M. J. Allen and Sons, of Brampton, Hunts.

The tender for the erection of the Pageant stand at Scarborough has been let, the accepted price being £2,799. Four thousand five hundred seats are to be provided.

An adjudication in bankruptcy has been made against John Starkey Gardner, Tradescent-road, South Lambeth, and Riverholm, Maidenhead Court, Maidenhead, lately Wilcox-road, South Lambeth, art metalworker.

The corporation of Belfast have applied for a loan of £88,500 for the completion of the villas at Purdysburg Asylum, £25,813 for the completion of the branch sewers in the Sydenham district, and £4,986 for a new trunk sewer at Ballymacarratt.

The Right Rev. Dr. Nickson, Lord Bishop of Jarrow, opened the new vestry-hall of St. Francis Church, Hendon, Sunderland, and reopened the renovated interior of the church, on Friday. The cost of the building and alterations is between £1,000 and £1,100.

At the annual meeting of the Royal Birmingham Society of Artists, held on Saturday evening, the members presented to their President, Arch. Lechore A. Cosins, F.R.B.A., a portrait painted by Mr. Edward S. Harper. At the same meeting, Mr. C. E. Bateman, F.R.I.B.A., was elected as a member of the society.

The "London Gazette" announces that the King has authorised Mr. P. B. Chambers, Professor Arch. Lechore A. Cosins, F.R.B.A., of Buenos Aires, to wear the Cross of Chevalier of the Legion of Honour, conferred by the President of the French Republic, in recognition of services rendered in connection with the Argentine electric works of the French Section at Buenos Aires in 1910.

At the annual meeting of the Timber Trade Federation of the United Kingdom, Mr. George H. Lindsey-Renton, of Messrs. G. H. Renton and Co., timber importers, Cannon-street; and Mr. John Gallatly, of Messrs. Gallatly and Bravery, timber agents, of St. Helens-place, were respectively elected vice-president and vice-president. The president was invited for the first time with a presidential badge.

The corner-stone of a new theatre, to be called "His Majesty's," which is being erected in Quay-street, Manchester, was laid on Saturday by Lord Teynham and the Dean of Manchester (Bishop Welldon). The new theatre will have seating room for four thousand persons—five hundred more than that of any other theatre in the neighbourhood. The architects are Messrs. Farquharson, Richardson, and Co., and the contractors are Messrs. Ernest Hawkins and Co., Westminster.

Our Illustrations.

TOTTENHAM COUNTY SCHOOL.

This school is to be erected on a site of about 1½ acres at the Green, Tottenham, adjoining the public baths, and has been designed to harmonise with the several municipal buildings adjoining. The school provides accommodation for 405 boys and girls in sixteen classrooms, and also the following extra accommodation: Hall, chemical and physical laboratories, preparation-room and dark-room, cookery-room, art-room, manual-training room, botany-room and greenhouse, dining-room and kitchen, library, cloakrooms and laboratories, changing rooms, common-rooms for teachers, principal's room, head assistant mistress's room, cycle stores, etc. Each classroom is arranged so that cross-ventilation is obtained. The portion of the school fronting to the Green is faced with red brickwork and stone dressings, roofed with rustic slates and copper-covered floor. All internal floors, beams, and lintels are of reinforced concrete, as also are the flats over corridors, etc. The school will be heated by hot-water, hot-air system, and lighted by incandescent gas. Messrs. Mattock Brothers of Wood Green, tender of £16,577 has been recommended for acceptance by the Education Committee, and the cost of the work will be borne equally by the Middlesex County Council and the Tottenham Urban District Council. The plans have been prepared by Mr. H. G. Crothall, architect to the Middlesex Education Committee.

GOVAN PARISH CHURCH, GLASGOW: NEW CHANCEL.

Our double-page plate illustrates the interior of the chancel of this church, which was recently lengthened through the generosity of Sir John Stirling Maxwell of Pollok, the east wall being rebuilt. The interior walls are faced with brick with bands of stone. The old sacrophagium shown was found in the graveyard, and is reputed to be the shrine of St. Constantine. Sir R. Rowland Anderson, LL.D., F.R.I.B.A., F.R.S.E., is the architect.

WHARNCLIFFE MEMORIAL.

This memorial, erected by the tenantry in memory of their late landlord, the Earl of Wharncliffe, is placed in Newtyle Church, Forfarshire. The tablet is of cast bronze, and is surrounded by a marble frame. Sir R. Rowland Anderson, LL.D., F.R.I.B.A., F.R.S.E., is the architect.

KEIR MEMORIAL (DUNBLANE CATHEDRAL).

This monument, erected to the memory of the Stirlings of Keir, is on the east wall of the north aisle of nave. Alabaster has been mainly used, with marble for the columns, etc., the engraving being picked out in gold, and the heraldic work coloured. Sir R. Rowland Anderson designed this memorial.

CHIMNEY-PIECE FROM GODESBURG.

This elevational drawing also gives the side profile of a capital example illustrative of the adaptation of Renaissance to modern domestic treatment with somewhat decidedly rich detail well contained within structural lines, avoiding the indecorous extravagances more recently the vogue in the already expiring L'Art Nouveau style, which seems to have had its day, more particularly in Germany. Messrs. Kayser and von Grossheim are the architects from whose design this chimney-piece was carried out. It compares favourably with much similar work of its kind from abroad.

SUNDIAL, HAARDAEN.

This house, one of the more recent works of the late Mr. John Douglas, in conjunction with Mr. Minshall, architects, was built for Miss Helen Gladstone on a sloping site close by the noted park and castle. Local bricks, with facings of cherry colour, also made in the neighbourhood, were used in the ground story, the windows having millions of moulded Ruabon brick with Runcom stone

sills, transoms, and heads, which have been continued along to form bands. Over the verandah on the south front, and occupying a sheltered position between and accessible from the bays of the bedrooms is a balcony looking out over a fine sweep of country. The upper part of the building is rough-cast in cement, the timber framing is of oak, and the roofs are covered with Westmoreland green slates. Messrs. W. and T. Baily, contractors, of Haarwarden, carried out the work. This drawing was exhibited at the Royal Academy.

The Admiralty has ordered that the depth of the basin of the Revett Naval base shall be deepened 5ft. more, as the bottom consists of rock. The work will occupy another year.

The corporation of Sheffield have raised the salary of their surveyor of tramways, Mr. W. J. Hadfield, from £490 to £650 a year, with a further increase of £50 as from March 26, 1912.

To the National Physical Laboratory at Teddington, the building has recently been added for the testing of roads and road materials, and providing machines for making mechanical tests on road materials.

Mr. P. M. Crosthwaite, Local Government Board inspector, held an inquiry at Biddgelert on Friday into an application by the Glaslyn Rural District Council for sanction to borrow £2,000 for a sewerage scheme and £2,000 for a water scheme for the village of Biddgelert.

The Canterbury Board of Guardians agreed at their last meeting, on the recommendation of a committee of the whole board, that a new workhouse laundry be built on the site suggested by the Local Government Board with a total estimated cost, including machinery, of £2,000, and that Mr. Dore be instructed to prepare a block plan showing possible future extensions to the workhouse and infirmary.

A sub-committee of Edinburgh Town Council have agreed to recommend that the preliminary notices for the Edinburgh Improvement Corporation planning scheme for the area of the city comprising Craigentinny, Restalrig, and Leochend. The sub-committee have also discussed a number of details connected with the town-planning scheme, ready under consideration, dealing with the area near East London-street.

The foundation-stone of the new English church at Versailles was laid on Friday by Dr. Bury, Bishop for Northern and Central Europe. The old church, an unpretentious building which had been erected in 1660, stood intact throughout the Franco-Prussian War, but was burnt to the ground on Sunday morning, January 29, 1911. The design of the new building, in the Gothic style, was submitted by M. Yve-Farmanier, a Paris architect, and has been adopted.

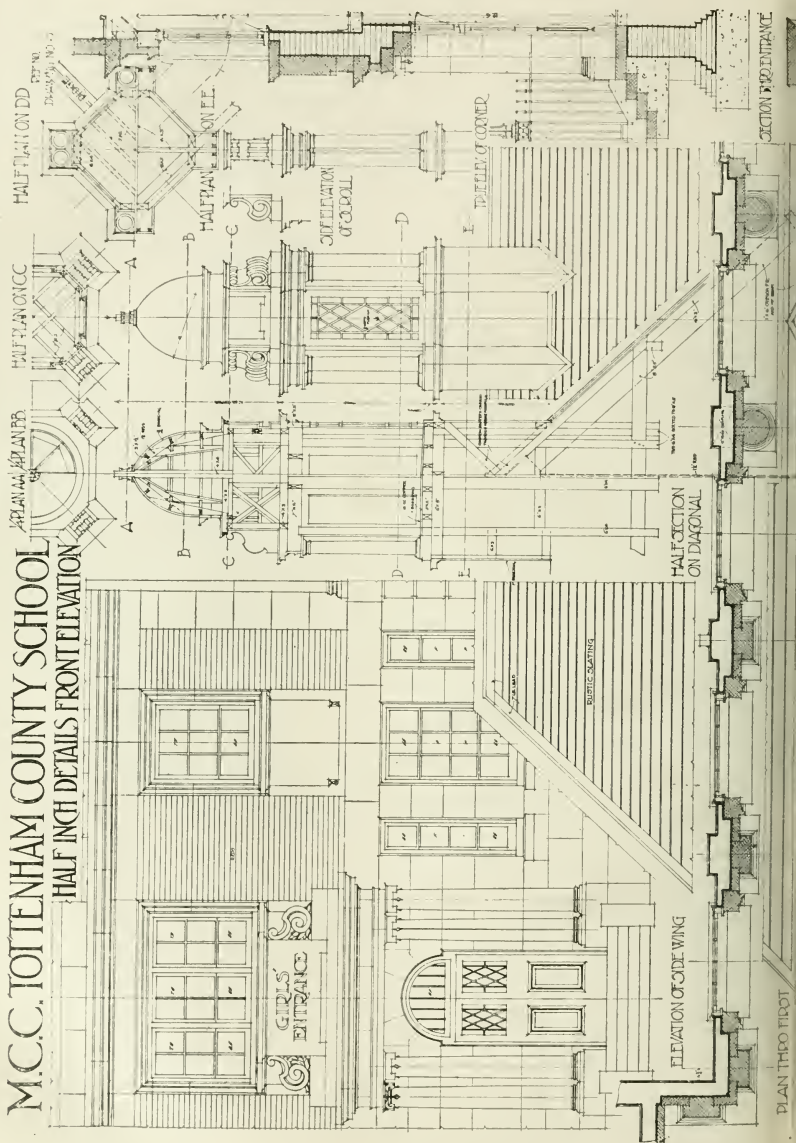
The corporation of Eastbourne is purchasing, for £100,000, Devonshire Park, at present held by a company. The Duke of Devonshire is reducing his share capital from £150,000 to £23,000, is giving £130,000 towards the purchase money, and interest on the remaining £15,000 he offers as a annual contribution towards the maintenance of an orchestra. The park is eleven acres in extent, and comprises baths, eight shops, a theatre, racquet-court, public bar, a floral hall, a pavilion, an Indian pavilion, and a tennis pavilion.

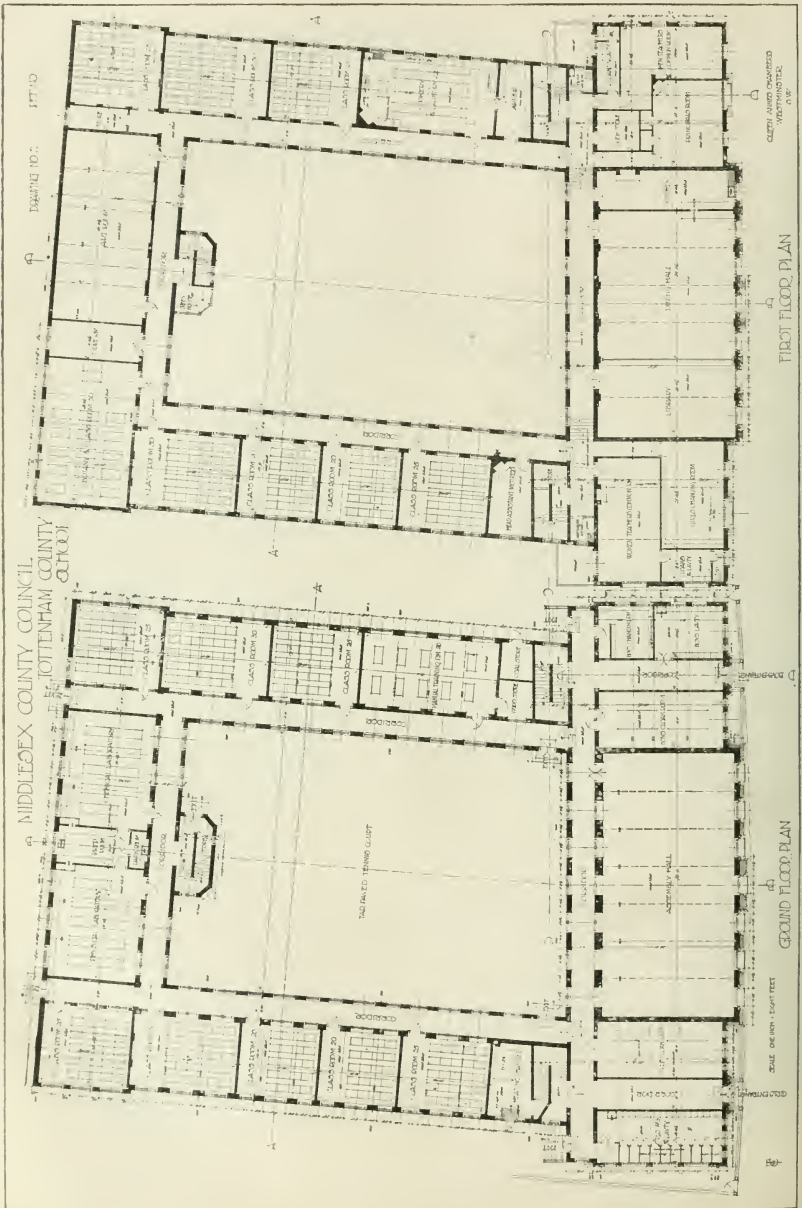
The new south transept of Selby Abbey is nearing completion. The design of the great decorated window, which almost fills the front of the south elevation, is now completed, and the side walls and buttresses are growing apace. It has been found, however, that it will be impossible to have the building ready for opening and dedication at the dedication of York on the date which had been originally fixed (June 18), and the ceremony has perforce to be deferred until August. Mr. J. Ould Scott, F.S.A., is the architect, and Messrs. Ullathorne and Sons, of Selby, are the builders.

A memorial to King Edward VII., subscribed for mainly by the Jewish population of the East End of London, was unveiled in White-chapel-road on Friday by the Hon. Charles Rothchild. The memorial, which has been designed by Mr. W. S. Frith, is a drinking fountain, and the site on which it stands is immediately opposite to the London Hospital. It is in the form of a pyramid, and surmounting it is a bronze statue of Peace with an olive-branch, while at the sides are statues of Justice and Liberty. In front is a bronze medallion portrait of the late King, and at the back is an inscription.

M.C.C. TOTTENHAM COUNTY SCHOOL

HALF INCH DETAILS FRONT ELEVATION





NEW COUNTY SCHOOL, TOTTENHAM.—MR. H. G. CROTHALL, Architect

PARLIAMENTARY NOTES.

"SEWER" AND "DRAIN" DEFINED.—A Bill introduced by Mr. Harmond-Banner, M.P. for the north-west London Division, Municipal Corporations and of the Urban District Councils Association, seeks to amend the definitions of "sewer" and "drain" in the Public Health Acts. The Bill provides that a drain shall be one constructed on private land by the landowner or builder, and that a sewer shall be one which has either been constructed by the local authority or has been laid along a public street—with this important exception, however: that where a drain has been constructed by the landowner or builder, and a private street—that is to say, along a street which has become a highway, but which is not separable by the local authority—the drain is to be a sewer, provided it has been constructed to the satisfaction of the local authority.

THE NEW CITY AT DELHI.—Mr. MacCallum Scott asked the Under-Secretary for India on Tuesday what salaries or allowances, if any, were to be paid to the members of the committee appointed to advise the Government of India in the laying out of the new capital city at Delhi.—Mr. Montagu: The members of the committee receive their travelling and living expenses, and the following fees for a five-months' engagement:—Captain Swinton, 500 guineas; Mr. Brodie, 1,750 guineas; Mr. Lutyns, 1,500 guineas. The Secretary of State has also undertaken to refund to the corporation of Liverpool the amount of Mr. Brodie's salary for the period of his absence. Mr. MacCallum Scott asked the Under-Secretary for India whether the selection of Captain Swinton as a member of the committee to lay out the new capital city at Delhi was made at the request of the Government of India, or whether it was suggested by the Secretary of State, and what special qualifications as a town-planning expert were possessed by this gentleman.—Mr. Montagu: The offer of service on the committee was made to Captain Swinton at the request of the Government of India; but the Secretary of State takes full responsibility for the appointment. It was thought desirable to associate with the professional members of the committee persons who had experience of the administrative problems of a great city. Captain Swinton served for 11 years on the London County Council.—Mr. MacCallum Scott: May I ask the hon. gentleman whether this gentleman is the same who is chairman of the London County Council, and whether the Government have received any complaints as to political corruption from the other side.—Mr. Montagu: The answer to the first question is in the affirmative, and the answer to the second question is—Not yet. (Laughter.)

A Conservative clubhouse is about to be built at the rear of the town-hall in Crickhowell, from plans by Mr. J. Richards, of that town.

The Army Council have approved the purchase of a plot of land in Hornchurch road, Romford, at £1,000, as a site for headquarters for the 2nd Essex Battery R.F.A.

Mr. Alfred J. Hall, of Cockermoston, has been engaged by the consulting engineers of the Crown agents as an assistant engineer in the construction department of the Federated Malay State Railways. Mr. Hall leaves for Penang to-morrow (Saturday).

The death is announced of Mr. E. T. Felgate, architect and surveyor, of York. After being employed in the N.E. Railway architect's office, he held a position in the city surveyor's office for a number of years. For a considerable period he held the position of surveyor to the Streuwall Council.

Chevalier Formili, who has for a long time been engaged on a series of encaustic paintings for the decoration of the Roman Catholic Cathedral, Leeds, showed them last week to Cardinal Bourne. These mural decorations have been carried out by a special process, and they are to be shown in the cathedral on Passion Sunday by Bishop Vaughan.

The health committee of Tynehampton Corporation have had before them reports from the borough surveyor and the medical officer of health with regard to the proposed acquisition of Balkwell Farm, near North Shields, and the erection of a hospital thereon. The medical officer of health has suggested that the site is advisable to build a permanent structure for ordinary infectious diseases at Balkwell, and to use the present hospital and site for smallpox cases. He has resolved that the council's scheme for acquiring the farm be at once submitted to the Local Government Board, with the object of obtaining them.

STATUES, MEMORIALS, &c.

THE BACON MEMORIAL.—A bronze statue, 6ft. in height, of Francis Bacon is about to be erected in the South-square, Gray's Inn. The statue, which will be the work of Mr. F. W. Pomeroy, A.R.A., will stand on a pedestal of Portland stone, of Renaissance character, 5ft. 10in. high, placed on two shallow steps. Mr. Pomeroy's statue, which was exhibited in the Royal Academy last year, represents Bacon in the robes of Chancellor, holding in his left hand the case containing the Great Seal. The memorial will stand at the west end of the garden in South-square, almost opposite the principal entrance to the Inn. The statue will be unveiled on June 27 by Mr. Arthur Gill, the Treasurer of Gray's Inn.

MEMORIAL TO SIR CURZON WYLLIE.—The foundation-stone of the memorial to the late Sir Curzon Wyllie was laid on February 23 by the Hon. Sir Elliot Colvin, K.C. & L., Agent to the Government-General in Rajputana, at Ajmer, Rajputana. The memorial, which will be placed in a garden, will take the form of a fountain to provide water for man and beast, and is to be erected entirely of marble, at a cost of Re.30,000. The design is the work of Sir Seintoun Jacob.

WATER SUPPLY AND SANITARY MATTERS.

TEDDINGTON. The urban district council has decided to proceed at once with a new sewerage scheme, which will involve an outlay of £35,000. Teddington was one of the constituent authorities of the Lower Thames Valley Main Sewerage Board, which comprised over twenty local authorities, and spent nearly £100,000 during a period of about six years, in further efforts to carry out a combined scheme of main drainage. On the dissolution of the board, over twenty years ago, Teddington executed a sewage-disposal scheme at a cost of over £40,000, in which the treatment was by chemical precipitation and land-filtration. Owing to the difficulty of disposing of the sludge and defects in the sewers, the district council has been compelled to face this further heavy outlay. It is now proposed to abandon chemical precipitation in favour of the bacterial system. A new sewerage will be constructed to burn the sludge as well as the refuse of the town.

A receiving order has been made in the case of William Thomas Reynolds, Sutton-road, Laughey, Kent, described as architect and builder.

A full-length statue of Edward VII. in State robes, and of heroic proportions, is being executed for Huddersfield by Mr. Bryan Baker, of Chelsea.

The Chichester Rural District Council have decided to provide a water supply for the town in accordance with plans and specifications prepared by Mr. G. A. E. Hickson, M.I.C.E.I., of Tonbridge.

The new Church of Holy Trinity, Southport, was consecrated by the Bishop of Liverpool yesterday (Thursday). It is Decorated Gothic in style, and has been built from plans by Mr. Huon A. Matentear, of Liverpool.

A street-widening scheme at Castleford, to cost £4,386, was the subject of an inquiry by a Local Government Board inspector at Castleford on Tuesday, the local council having asked sanction to borrow the money. There was no opposition.

The marriage arranged between George Howard Ford, M.A., son of Mr. Thomas II. E. Ford, of Bromley, Kent, and Gertrude, second daughter of Mr. Ellis Marsland, M.B.A., of Painswick, Gloucestershire, will take place on April 18 at the Painswick Parish Church.

The Clydebank and District Water Trusts have obtained estimates of the cost of completing their works at Burncrook. The estimate for the works alone is £20,045, that for the additional land required to raise the level of the reservoir is £3,440, for slow sand filters (including land) £1,100, and for filters of the rapid type £3,600.

The works of the Hydro Electric Power scheme at the Great Lake, Tasmania, are nearly completed. Contracts for the first unit to develop 9,000 horse-power, and the transmission line for 20,000 horse-power, have been entered into with the British Westinghouse Electric and Manufacturing Company, Ltd., and with Messrs. Jans, Boving, and Co. for the steel pipes and turbine plant.

Our Office Table.

The London Museum was visited by the King and Queen on Wednesday, and, we suppose, will before long be open to the public. There are over 10,000 exhibits, and though no catalogue is ready, most objects are labelled. The annex will, perhaps, be the most popular part of the museum. There are the remains of the Roman boat found under the now demolished Aquarium at Westminster, lying on the bed of the river, 21ft. below the level of the present roadway. The interior of Wellclose-square Prison, with the scold's bridge and other implements of torture, will thrill the curious; and the museum has acquired Mr. John B. Thorp's five models of Old London which were exhibited at the Franco-British Exhibition, and afterwards at the Festival of Empire.

A memorandum to the Ancient Monuments Protection Bill, presented in the House of Lords by Lord Southwark, explains that the measure acts upon the report of the Royal Commission on Ancient Monuments, that valuable monuments are being lost and urgently need preservation. By the Ancient Monuments Protection Act, 1882 to 1890, an owner of a monument may, in certain conditions, obtain the guardianship of the Commission of Works for a monument. The present bill gives power to the Commission of Works, with the advice of an advisory board, to secure that historic monuments shall be preserved from destruction and decay. The great majority of owners already preserve such buildings. These will be unaffected by the bill.

The orphanage to be provided by Lord Wandsworth's bequest will not be hampered for funds either in building or maintenance, the available residue to be allotted to the purpose being estimated at considerably over a million sterling. £25,000 may be expended by the trustees on a site, the erection of the buildings, their character, City and additions being left to the trustees' discretion. The executors of the will and its two executors, which range in date before January, 1898, and August of last year, are Lord Wandsworth's "life-long friend," Mr. Benjamin Thomas Lindsay Thomson, architect, of Lindsafarrie, Copse Hill, Wimbledon, and Mr. William Jappies, City agent. To Mr. Thomson Lord Wandsworth left all his freehold property, all debentures and shares in Anglo-American brewery companies, everything in his house at 10, Great Stanhope-street, everything in his stables at 70a, Curzon-street, and a further £1,000 on completion of the building of the orphanage. To Mrs. Thomson he left all his debentures, stocks and shares in English water companies.

At Tuesday's meeting of the London County Council the Improvements Committee recommended the acceptance of the offer of the London and Northern Estates Company (Limited) of a rent of £2,050 a year for a lease of 99 years of a site between Lincoln's Inn-fields and Kingsway. The site has frontages of about 72ft. to Lincoln's Inn-fields and 60ft. to Kingsway. It is proposed that the lease shall provide that the forecourt in Lincoln's Inn-fields shall not be built upon above the present level, and the available building area of the site will thus be 9,710 square feet. They further reported that the Crown Agents for the Colonies have offered a rent of £3,675 a year for a lease of 99 years of a site at the junction of Millbank and Wood-street to the Westminster improvement area. The site has an area of about 21,000 square feet, with frontages of about 140ft. to Millbank and Wood-street, respectively. The offer was made subject to the intending lessees being allowed to construct vaults with pavement lights under the footways of Millbank and Wood-street, and the committee offered no objection to this proposal. The lessees also desire to have the first refusal of purchasing the freehold of the site, should the Council at any time decide to sell its interest in the land. It was recommended that the offer be accepted. The committee also recommended the Council to

accept the offer by Marconi's Wireless Telegraphic Co., Ltd., of £65,000 a year for a lease of the Gaiety Restaurant premises, Strand, for 90 years. All these recommendations were adopted.

In January last the London County Council asked the Board of Trade to appoint an arbitrator to settle the question which had arisen with the Stoke Newington Metropolitan Borough Council with regard to the paving works along the portion in Stoke Newington of the Council's tramways in Green lanes and Southgate-road. The borough council was arranging to repave the carriage-way along the route, and proposed to use shallow hardwood paving for certain portions of the work. This material was considered by the County Council to be most undesirable for use in the tramway margins. The award of the arbitrator appointed by the Board, Mr. J. E. Waller, M.I.C.E., has now been issued. The findings of the arbitrator, as set out in the award, are as follows: (i.) The requirement by the borough council of sectional wood blocks of a depth of 3 in. is reasonable; (ii.) the requirement by the borough council of wood blocks of a depth of 3 in. is not reasonable. He further awards that the requirement by the borough council of any wood blocks other than solid wood blocks of a depth of 5 in. is not reasonable. Under the terms of the award the County Council's costs of, and incidental to, the arbitration, and the fees of the arbitrator, which amount to £119, are payable by the borough council.

Sir Robert Hunter writes to the Press protesting against the proposal of a banking company to acquire and sweep away a group of old cottages on the east of the Market-place at Haslemere, and to replace them by a new office. The present buildings are, says Sir Robert, typical of West Surrey construction, walls of red brick, tiled roofs, and outlinings picked up by iron gables and corniced chimneys. They are of great age, and their colouring is consequently rich and sober. They group with an adjoining long low cottage of three gables, not, fortunately, to be touched, which is said to have housed Queen Elizabeth on one of her journeys. Their demolition will spoil the pleasant group and leave the surviving relic of Tudor times out of harmony with its surroundings. Hitherto Haslemere, despite many changes, has preserved its rural character. Every unnecessary step which tends to modernise its features and to give it the aspect of a suburb is deplorable. All will agree with Sir Robert in his regret that a bank cannot develop its place from which it draws its custom. Mr. Walter Tyndale, the artist, and Sir Richard Garton, are petitioning the Postmaster-General, asking that the telephone wires, which, with their posts, disfigure the town, should be buried.

Replying to Sir Robert Hunter's protest, Mr. Thackeray Turner asserts that if the two projecting gables which form the centre of the threatened group of old cottages are cleared away, that remains will be of small value. Mr. Turner suggests that an architect could meet the requirements of the bank by pulling down the portion of the buildings next the hotel, retaining the projecting wing with its two gables, and the roof and old chimney behind them. He could then build upon the cleared site a good bank frontage, utilising the space on the ground floor under the projecting gables and making the new front of brick, keeping it quiet and in harmony with the old work.

A number of interesting portraits of statesmen and artists, recently acquired by the trustees, have now been placed on exhibition at the National Portrait Gallery. They include—Thurs. Maestri of the K. G., 1830-1903, and Sir Henry Irving, 1838-1905, two drawings by Phil May; Bernard Lewis, 1684-1740 (miniature painter), painted by himself in 1721; Mary Tighe, 1772-1810 (poetess), miniature by Andrew Robertson (18) after G. Romney; Robert Bloomfield, 1766-1827, post-mortem miniature by Henry Bone, R.A.; Hugh Culling Eardley Childers, 1818-1877, 1890 (statesman), painted in 1884 by his daughter, Miss Childers; William IV., 1765-1837, pencil drawing attributed to Sir George

Hayter; Sir James Paget, P.R.C.S., 1814-1899, crayon drawing made in 1867 by George Richmond, R.A., for the Grillions Club Series; Charles James Mathews, 1803-1878 (actor), drawn at Venice in 1827 by J. F. F. (18) and John B. M., 1774-1856 (singer), drawing by R. Dighton, A.R.S.W., 1814-1884 (novelist), by Percy Fitzgerald, F.S.A., has been presented by the sculptor.

For the purpose of considering the town-planning scheme so far as it will affect Middleburgh, a joint meeting of the streets, sanitary, and plans committees was held on Thursday in last week. The proceedings, which were private, ended by the joint committee approving the proposals placed before them by Mr. S. E. Burgess, the borough engineer. These last were embodied in a special report, and at the meeting the borough engineer explained his scheme by means of large plans for dealing with the important areas of the borough. The matter, it should be added, had also been considered previously by a conference of property owners and other interested parties. The decision will, however, have to be ratified by the town council.

At Santpoort, in Holland, the first house of two stories, built of concrete, on the Edison system has been erected. The builders set up moulds, having the appearance of caissons, as high as the first floor. The concrete engineer explained his scheme by means of large plans for dealing with the important areas of the borough. The matter, it should be added, had also been considered previously by a conference of property owners and other interested parties. The decision will, however, have to be ratified by the town council.

The proposals for the sewerage of Kilkeny, estimated to cost from £20,000 to £30,000, are still unsettled. Two schemes, Messrs. P. H. McCarthy and R. Reed, Waterford, respectively, are before the corporation, who cannot make up their mind as between them. At their last meeting a proposal to employ independent expert advice to advise them as to the relative merits was brought forward, but was rejected, Council members, Stallard, and Dwyer arguing that it would be a "waste of money" to call in an expert!

Mr. George H. Willoughby, F.R.I.B.A., of National Buildings, Manchester, calls attention, in a letter to the *Manchester Guardian*, to the costliness of schools in that city. He points out that for a number of years the designing and erecting of all new school buildings, and alterations to existing ones, have been done without the assistance of an architect, draughtsmen only being employed, working under the supervision and direction of the Director of Education, together with a clerk of works previously with the late School Board. The poverty of ideas consequent on such a system, together with the unavoidable lack of economy, results, he asserts, in local schools being erected (1) below the standard in design, arrangement, and finish in architecture, an excessive cost compared with similar buildings in neighbouring towns. While the exclusion of all local architects from participation in the city's work has been a real grievance, he says, for years past, yet it is to the excessive costliness of the schools that he specially directs attention. It seems strange that while classes in architecture are provided at Manchester University and the Municipal School of Technology, yet those who have been trained in those institutions have no opportunities in their own city for designing schools. Mr. Willoughby contrasts the methods adopted by the Salford Education Committee, who invite local architects to submit designs for their work, and points out that the cost of erecting the Salford schools compares most favourably with those of Manchester.

The Ravenhead Sanitary Pipe and Brick

Company, Ltd., of Ravenhead, St. Helens, and Upholland, near Wigan, display, at the Rushmore Building Exhibition, rustic facing-bricks, rustic sneck-wallings, sand-faced bricks, etc., which attract attention and admiration. The "Ravenhead" rustic facing-brick, although it is a recent introduction, has been remarkably well received, and is used over a wide area; but one has not to go far to see an example, as it is utilised in the Home for Women Students at the Manchester University, opposite the exhibition building. Mr. James Heaton, the managing director, informs us that "the company is already being subjected to the flattery of imitation, and during the last few days even the name 'Ravenhead' has been used as a description for bricks not manufactured by this company. It has been an unchallenged description of their manufactures for over thirty-five years, the only word which can be used for this action is that it is 'contemptible' and merits condemnation by all honest-thinking people." The sand-faced bricks, although they have only been introduced a few months, are being most favourably received; indeed, the demand is such that preparations are being made for extending their production.

Cement lumber is a new form, devised by an American inventor, of making use of cement which dispenses with the necessity and uncertainty of mixing the material. The lumber consists of slabs made in suitable lengths, and this material takes the place of wood on the outside of a house. The framework is erected in the ordinary manner and a metal tie is nailed on the studding. The latter is galvanised and has a sloped edge. The ends of the slab come up to this and are held in place by bending the edge of the ties, first to one side and then the other, over the ends of the slabs. Subsequently the whole surface is finished by a coating of cement which fills all the crevices and covers the exposed portions of the tie. The metal tie costs two cents a foot. A cement house put together with a screwdriver is yet another novelty which has been recently introduced into the United States. The system is designed for houses of a more or less temporary character, or for houses that are liable to be moved from point to point, such as a temporary workshop or a private garage. The system consists of blocks of concrete in which has been buried a wire spiral with an opening in the cement to take a small bolt. These slabs are bolted in position over a metal or wooden frame, and when it is desired to move the structure the bolts may be readily removed with a screwdriver, and the whole structure transported without any damage to any desired point.

Mr. John Simpson, a Crimean Veteran from the Scots Guards, for about forty years in the service of the Aberdeen Harbour Commissioners as inspector of works, and who retired a number of years ago, died on Saturday, in his seventy-sixth year.

At the last meeting of the Stoke of Peterborough County Council, plans by Messrs. Townsend and Fordham, architects, of Peterborough, were adopted for the internal rearrangement of the Sessions Court, Thorpe-road, Peterborough, and it was decided to invite tenders for the work, which is estimated to cost £1,500.

A Local Government Board inquiry into the application made by the Wallasey Town Council to borrow £6,120 for the purchase of land in Belvidere-road for the purpose of a recreation ground, was held at the town-hall, Wallasey, yesterday (Thursday), before Mr. Justice, Norton, R.E. The land proposed to be purchased has an area of 42,768 square yards, the price being 2s. 10d. per square yard.

In the Court of Appeal, on Monday, before the Master of the Rolls and Lords Justice Fletcher Moulton and Buckley, further proceedings in the appeal by Worcester College, Oxford, from a decision of Mr. Justice Joyce, in August last, dismissing an action against the Oxford Canal Navigation relating to the draining of the college meadow, were stayed owing to the parties having arrived at an agreement.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Birmingham Architectural Association. Development of the Renaissance in Scotland, by Laurence Weaver.

Leicester and Leicestershire Society of Architects. Discussion on "R.I.B.A. Second Report on Reinforced Concrete," introduced by W. Keay, A.M.I.C.E. 8 p.m.

MONDAY.—Architectural Association. "Patriotism in Architecture," by C. F. A. Voysey. 7.30 p.m.

Royal Society of Arts. "Materials and Methods of Decorative Painting." Cantor Lecture No. 2, by Noel Henton, B.Sc., R.C.A. 8 p.m.

Society of Engineers. "Lignin-Concrete," by Gerald O. Case. 7.30 p.m.

TUESDAY.—Architectural Association Athletic Club. Smoking Concert and Revel, Pillar Hall, Victoria Station Restaurant. 8 p.m.

Royal Society of Arts. "British North Borneo," by Leonard Lovegrove. 8 p.m.

Institution of Civil Engineers. Further Discussion on "The Main Drainage of Glasgow," Paper to be read on April 10, by the City of Birmingham from Mid-Waters, by Ernest L. Mansergh, and Walter L. Mansergh, M.I.C.E. 8 p.m.

Institution of Municipal Engineers. Open Discussion on "The Site and Design of Street Gullies and Weirs." 7 p.m.

WEDNESDAY.—Royal Society of Arts. "The Whaling Industry of Today," by Theodore E. Salvendy. 8 p.m.

FRIDAY (MARCH 20).—Glasgow Architectural Craftsmen's Society. Business Meeting. 8 p.m.

SATURDAY (MARCH 30).—Architectural Association. Visit to New Wesleyan Church House, Westminster. (Lancaster and Richards, F.F.R.I.B.A., Architects.)

Mr. J. Hunt Medley, F.S.I. of Sunderland, has been elected president of the Rating Surveyors' Association.

The Duke of Connaught has announced his intention of giving a *rendezvous* to Bagshot Church in memory of King Edward.

The salary of Mr. C. Plummer, surveyor and inspector to the Haywards Heath Urban District Council, has been increased by £30 per annum.

Negotiations for the purchase of the public of Porter's Grange, a fine old Tudor residence at South-on-Sea, having failed, the property has been sold to Sir Charles Nicholson.

Alterations are about to be carried out at Park Lodge, Antinim-road, Belfast, for the Earl of Shaftesbury, from plans by the architect, Seaver, B.E. M.R.I.A., Scottish Temperance Buildings, Belfast.

Among the lectures announced to be given at the Royal Institution after Easter are two by Professor Reginald Blomfield, A.R.A., F.R.I.B.A., on "The Architecture of the Renaissance in France, 1494-1661."

An important scheme is on foot for the improvement of Doncaster as a shopping centre. This is the erection of a great business arcade with through communication, leading out of Freuchgate into St. Sepulchre-gate.

The report of the Departmental Committee on Forestry in Scotland, with appendices and index, was published on Wednesday as a White Paper. The committee recommend the establishment of a demonstration area for the promotion of silviculture in Scotland, together with (1) a flying survey to ascertain the best forest sites and their approximate extent; (2) the appointment of an advising forest officer with at least one assistant; and (3) the establishment of a limited number of State trial forests.

Mr. Stanford, an inspector of the Local Government Board, held an inquiry at the town-hall, Wilton, on Tuesday, into an application by the Wilton Town Council to borrow the sum of £1,500 for sewage-disposal purposes. The town clerk explained that at present the borough drained into the system of the Rembert Sewage Works, being pumped into the receiving-chamber. A subsequent examination of the levels, however, had revealed the possibility of draining by gravitation, thus doing away with the pumping station, the cost of which involved a rate of 7d. in the £1. Mr. J. H. Blizard, of the firm of Lemon and Blizard, engineers, explained the details of the scheme, which was supported by Dr. Tubb Thomas, the county medical officer, and by Mr. G. R. Kendle, agent to the Earl of Pembroke.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, and all alterations claimed upon the space allotted to correspondents.

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* * Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and, for such a charge as made for insertion. Of more commonplace subjects—small churches, chapels, houses, &c., we have usually far more sent than we can insert, but are glad to do so when space permits on mutually advantageous terms, which may be ascertained on application.

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TRAVER—No.

ASPER—Send, and we will see.

N. D.—We do not pay societies for reports of lectures.

DECO.—On right lines, but very costly. Besides, matter of the kind is not suitable in a newspaper. The first Clocks.—The first firm named went out of business years ago. Whether the second still exists we do not know. All those whose names appear under "Clock-makers" in our "Directory" are good and reliable firms.

M. R. J.—We believe the wrought-iron casements you want are still made; but we do not know. We heard once accounts of them for other metal Casements. Ltd. See our "Directory" for Addresses of other well-known makers under "Casements and Windows." 2-Yes.

ALL WROUGHT.—All depend on the wording of the contract, on which no useful advice can be given except by a careful lawyer who has considered it. All we can tell you is you must "get an opinion" on the issue of a writ, and suggest consultation of the solicitor we have named to another correspondent, if you have no one local.

W. H. KNIGHT.—The objection is, in our opinion, an unwarrantable one on the face of it, and your contention is a reasonable one. But the wording of the agreement may nevertheless warrant the company's action, and we advise you to consult a careful lawyer versed in building agreements. If you do not know one, we suggest Mr. J. F. Wetherfield, of Wetherfield, Son, and Baines, 1, Gresham Buildings, Gresham, E.C., who has advised us for many years.

TRADE NOTES.

Mr. Alfred Saxon Snell's address is now 9, Benintine-street, Manchester-square, W.

Under the direction of Mr. Harold R. Hooper, architect, Ipswich, Boyle's latest patent "Automatic" ventilators have been applied to the theatre, Harwich.

The additions to the Farnham Workhouse are being supplied with Shorland's patent Manchester grates by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Mr. W. J. Fennell, F.R.I.B.A., Scottish Provident Buildings, Belfast, has taken into partnership his chief assistant, Mr. Harold S. Clarke, and the style of the firm will be Messrs. Fennell and Clarke.

We are informed that Messrs. Stephens and Carter, of Paddington-green, the well-known ladder and barrow makers and scaffolding contractors, have purchased the old-established business of Messrs. Ell and Co. They are transferring the business recently carried on by Messrs. Ell and Co. at Boulders Wharf, Paddington, to their Paddington-green yard, but are keeping on and enlarging the yard at Kennington-road.

Messrs. J. B. Joyce and Co., Ltd., Whitechurch, Salop, have received instructions to make a large clock with four illuminated dials, and striking the hours and quarters, for the memorial clock-tower about to be erected at Grange-over-Sands. The clock will contain all modern improvements, including gravity escapement and compensated pendulum. The same firm are now making a clock with four dials for the Bull's Head Hotel, Bacup, which also has the gravity escapement and compensated pendulum.

CHIPS.

Mr. A. H. Swanson, of Inverlachen, has been appointed building surveyor of Lintlithgow.

The West Riding County Council have made the following increase of salaries: Mr. J. Vickers Edwards, county architect, £400; Mr. T. V. Steele, land agent, £50; Mr. J. Stuart, educational officer, £50.

Confectioners' and restaurant premises in Queen's-road, Clifton, Bristol, have just been reconstructed from plans by Messrs. La Trobe and Weston, of that city. The contractors were Messrs. Hayes and Son, also of Bristol.

New parochial buildings are about to be built at Berwick-on-Tweed. The general contractors are Messrs. R. & J. Brown, of Berwick. Messrs. Harrison and Ash, of Newcastle-on-Tyne, and the cost will be £23,000.

Mr. Poase, the President of the Board of Education, took part in the opening of the new grammar school at Watford on Wednesday. The school is in Cassobury Park, and £25,800 has been spent on the building, which accommodates 350 boys, and there are nine acres of playing-fields. Messrs. Russell and Co-per are the architects.

Extensive alterations are about to be made to the Ambert Cinemaograph Hall, Kingsland High-street, by Messrs. Frank Matcham and Co. The same firm of architects are also carrying out alterations and enlargements to the Broadway Cinemaograph Theatre, Walham Green.

The action begun in 1908 by the Johannesburg Municipal Council against Messrs. D. Stewart and Co., 1902, Limited, and others for the payment of sums amounting to over £400,000 in respect of the non-fulfilment of contracts for the installation of gas and electrical plant was settled in the Court of Session, Edinburgh, on Wednesday, by the payment of £100,000 to the plaintiffs.





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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

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Strand, W.C.

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SPECIALIST OR SUB-CONTRACTOR?

However carefully a building contract may be drawn up, and although full provision is made for its working out well upon normal lines, yet unexpected events may occur, raising questions of law, as to the position of the various parties interested. Possibly such a fact as the failure of the contractor before the job is completed, and the consequent change in the responsibility of the building owner as to certain classes of creditors, could be dealt with there, but it would be a matter of some difficulty. The result is that when such an event occurs, the law has to settle the rights and responsibilities of those concerned upon a consideration of all the facts, as well as of the contract.

One point that has occurred lately somewhat frequently is as to the position of a trader who has supplied goods or work to the job by the order of the architect. It is very usual to set down such a trader as a sub-contractor, and to provide for his payment upon architect's certificate as through the contractor. But supposing the contractor fails, and does not pay this account, even after he has received money from the building owner for that purpose, what then is the trader's position? Is he bound to lose his money because the contractor fails, or can he sue the building owner as the real principal in the transaction? Obviously the answer turns upon the point whether such a trader is in fact and in law a sub-contractor, or is what is called a specialist—i.e., a trader who has supplied special goods to the job on a separate order. Many architects regard all such traders as sub-contractors, and they are often so classed in the building contract itself. But that does not determine the legal relation of the parties to each other, which has therefore to be decided, where necessary, upon general principles of law as applied to the facts found in each case.

Some guidance upon this matter can be gained from the case of *H. Young and Co., Ltd., v. White* (*Times* Law Rep. Vol. xxviii., p. 87), decided by Mr. Justice Colvile, October 31 last; especially as, in the considered judgment delivered, some previous similar decisions were followed. It may be noted, however, that these rulings of single judges at Nisi Prius are binding upon the Court of Appeal, and are, they strictly speaking, upon the Judges of First Instance. The plaintiffs were specialists in steelwork, and they sued the defendant, as building owner, for a sum of £150 due for work and materials. The defendant's architects were Elms and Jupp, and the contractor was Nightingale. In the usual way, the archi-

teers, in July, 1910, sent the plaintiffs drawings, and invited them to tender for certain steelwork on their job of erecting new buildings. The plaintiffs, not then even knowing who was to be the contractor, sent in a tender for £220. They had had nothing to do with the builder, and from first to last they never knew the contents of the building contract. In September the architects wrote the plaintiffs, giving the builder's name, and saying they had instructed him to place the order for this special work with them. This was done on the day of signing the contract, which contained the usual clauses dealing with sub-contractors, and provided that a sum of £250 should be included for this structural steelwork. It appears that the contractor tried, but failed, to get terms as to discount, etc., from the plaintiffs before giving out their order. They then wrote the architects, saying the work was in hand, and asking for the order, which they got later from the builder, for the steelwork, in accordance with their estimate and drawings sent to the architects in July. So the job went on, and in January, 1911, the architects sent the contractor a certificate for £300, saying it included £150 for the plaintiffs. They also wrote plaintiffs to this effect, enclosing them a certificate addressed to the contractor for £150. A few days later Nightingale, the builder, called his creditors together, and went into liquidation, without having paid over this money. So the plaintiffs now sued the building owner for that amount, which, of course, raised the question of his liability for the whole of their account.

Now, the question in this case clearly turned upon the facts as to what contract was made between the plaintiffs, as specialists in steelwork, and the defendant or his agents the architects, as building owner. It was not primarily affected by the building contract for the job, to which the plaintiffs were, of course, not parties, and of which they never heard until afterwards. The judge went fully into the various ways in which the point can be put. The plaintiffs' right to recover depended upon whether the contract for this work was made (1) between the plaintiffs and the architects as agents for the defendant as building owner; or (2) between the plaintiffs and the contractor as agent for the defendant; or (3) between the plaintiffs and the contractor *prima facie* as principal, but really as agent for an undisclosed principal, who is, and must be, the defendant, as building owner; or (4) as between the plaintiffs and the contractor, both parties as principals. He held that it was only upon proving his case upon the first alternative, i.e., that the contractor

ordered the goods and work as principal himself, that the defendant could succeed in supporting his defence. The only other way in which the defendant could escape liability was by showing that the plaintiffs had made their election to debit the agent, whether the architect or the contractor, so that he was precluded from turning afterwards to the principal for payment. But this argument was not really pressed by counsel, the fact being only used to show that the contractor was substantially not agent, but principal. The judge held, however, that the mere fact that the plaintiffs entered the name of the contractor in their books, as is usual in such transactions, up to the time of his bankruptcy, and even applied to him for payment of the £150 which he had received on their account, was not sufficient evidence of such an election by them as would relieve the defendant from liability as the principal contracting for the work.

Reference was made to the case of *Hobbs v. Turner* (xviii. *Times* Law Rep. 285), where the contract and facts were the same as here, except that there the architect had sent the specialist a certificate addressed not to the contractor, but to the building owner himself. The Judge held that such a difference in the name of the addressee could not alter or affect the legal position of the parties. The rules of law as applied to the facts of each case must settle the rights and responsibilities of the concerned, and no views of the architects or other agents acting in the matter can operate to determine the result. The second and more recent case mentioned was that of *Crittall Manufacturing Co. v. London County Council* (lxv. J. P. 203) before Mr. Justice Channell, who, upon similar facts, decided in favour of the plaintiff on the ground that he was a specialist, and not a sub-contractor, and so could recover payment from the building owner if work done through the architects as his agents. It is, of course, quite clear that by merely so styling a trader who supplies special work or goods in a building contract, an architect cannot turn him into a sub-contractor, so as to relieve the building owner from all liability. This can be done by an architect wishing to protect his client if the specialist is given proper notice that he is giving credit to, and dealing with, the contractor for the job, who alone will then be responsible for payment. In this case, the architects, as agents for their client, the building owner, had given him away from the beginning by asking for an estimate of the builder was *own* named, and nothing done afterwards about the liability, so that the plaintiffs remained at liberty for their

money. The fact that the architects passed on the giving out of the actual order to the contractor, who was only another agent for the defendant, made no difference, especially as the plaintiffs only accepted it as in accordance with the architect's original letter. The clauses in the building contract as to sub-contractors, which, of course, the plaintiff had never signed, nor seen, nor had any notice of, had nothing to do with the separate contract for steelwork made between plaintiffs and the architects or the contractor, both here acting as agents of the defendant as building owner.

The Judge went rather fully into the whole position of the building owner upon these transactions. He pointed out that if the specialist does the work for less money than the prime cost provided for, the owner gets the benefit of a reduction. If more has to be charged, it is added by the contractor, and becomes an extra under the building contract. Thus the building owner either takes the benefit or suffers the loss, and the builder gets his profit on the whole contract. In this case the owner had himself, through his agents the architects, chosen the specialist, and so he alone had a real interest in the work to be done. It is true that the complex plan of the building contract seems to show the contractor apparently acting as principal throughout. But though he does so in regard to sub-contracts, which he himself enters into, yet where specialists are concerned, he merely acts as agent for the building owner, who is the real principal. Seeing that contractors' failures have, of late years, unfortunately been somewhat frequent, and in view of those decided cases, it would be as well if architects, for the purpose of protecting their clients, the owners, against the risk of having to pay twice over, were to consider the clear legal differences between a sub-contractor and a specialist before it is too late, and so save them from loss and litigation.

ESTIMATING FOR REINFORCED-CONCRETE WORK.—VII.

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REINFORCED-CONCRETE PILES.

Casting Reinforced-Concrete Piles.—Reinforced-concrete piles are usually cast horizontally in wooden moulds, the sections of which are held together with iron clamps, so that they may be easily removed and re-assembled for re-use. The skeleton framework of steel reinforcing-rods, after being securely hooped and bound together and having a cast-iron or steel shoe attached, is rigidly suspended within the mould, which is then carefully filled in solid with concrete. The concrete should be laid in small quantities, and well worked around the reinforcement.

When reinforced-concrete piles are cast vertically, one face of the mould is left open. A cast-iron or steel pile-shoe is inserted at the bottom of the mould, the vertical reinforcing-bars fixed in position, and secured at short intervals with steel hoops and ties. A small quantity of well-wetted concrete is then rammed into position, and, as the work proceeds, the open face of the mould is closed with narrow boards about 6 in. deep, fixed in grooves in the sides of the upright mould. Very long piles cannot be readily cast vertically. This method is also more expensive than for piles cast horizontally; but the resultant concrete usually possesses a slightly greater density.

All the concreting to each pile should be completed in one operation.

Line-welding Pile Moulds.—The faces of the pile-moulds should be whitewashed or

payed over with a solution of soap to prevent the concrete adhering to the mould, and allowing it to be readily removed after setting.

Removal of Moulds.—The sides of the moulds may be removed after the concrete has been allowed to set for forty-eight hours.

Sealing of Concrete Piles.—All reinforced-concrete piles should be made and sealed for at least seven weeks before being planted in position and driven into the ground.

Aggregate for Concrete Piles.—Concrete piles are usually made with fine gravel, shingle, or crushed-granite aggregates, screened to pass 2 in. mesh, but not to pass 3-16 in. mesh. The proportions of cement, sand, and aggregates generally adopted are 1 to 4½ concrete (1: 1½: 3), 1 to 4 concrete (1: 1½: 2½), and 1 to 3 concrete (1: 1: 2). The strength of granite concrete is about 25 per cent. greater than that of ordinary gravel concrete.

Weight of Reinforced-Concrete Piles.—The approximate weights of reinforced-concrete piles are as follows:—

| 12 in. by 12 in. concrete square piles, including lbs. about 35 per cent. of steel reinforcement. | Per ft. run. |
|---|--------------|
| 12 in. by 12 in. ditto ditto | 216 |
| 14 in. by 14 in. ditto ditto | 232 |
| 16 in. by 16 in. ditto ditto | 256 |

Driving Concrete Piles.—Reinforced-concrete piles are driven by means of a hand or machine pile-driver, in the same manner as for wood piles; but the concrete pile head must be protected from any damage which might be caused by direct blows from the ram or monkey of the pile-engine. After a concrete pile is pitched in position ready for driving, the top of the pile is covered with a thick cast-iron or steel helmet or cap, a small bag of sand or sawdust being inserted between the cap and the top of the pile, so as to form a buffer which absorbs the shocks of the blows from the pile-driver, whilst at the same time transmitting the force of the blows to the pile. A short wooden "dolly" is usually fixed above the steel helmet, so that the whole provides a cushion which prevents the disintegration of the concrete head of the pile during the operation of driving.

Pile-driving with Water-jet.—To drive reinforced-concrete piles through hard, compact ground—such as heavy clay and gravel—is sometimes very difficult, and there is a risk of shattering the head of the pile unless great care is taken. Under such circumstances the driving of concrete piles is facilitated if they are fitted with a water-jet pipe and nozzle. A wrought-iron pipe about 1½ in. diameter is embedded in the centre of the pile, and terminates in a small nozzle at the shoe-point. The pipe is then connected to a steam force-pump, and when the pile is being driven, a high-pressure water-jet is forced through the nozzle at the point of the pile-shoe, thus assisting the penetrative power of the pile. If necessary, cement grouting can afterwards be forced through the pipe into the surrounding ground, so as to further consolidate it and add to the ultimate load-bearing strength of the foundation.

Concrete Screw Piles.—Reinforced-concrete screw piles have been used in the United States for providing a large bearing surface in marshy or boggy ground. The screw foot of the concrete pile is of cast iron or mild steel, similar in general design to those used for iron screw piles. Great care is required when screwing the piles into the ground.

Shoes for Concrete Driving Piles.—These usually consist of a solid cast-iron or mild-steel point formed with square

seating for the concrete, and drilled for four 2 in. by 2 in. wrought-iron or steel straps from 18 in. to 24 in. long each. The straps are secured to the steel point, and the upper ends bent for embedding in the body of the concrete. The lower ends of the steel reinforcing-rods are bent to shape, butted solid to the seating of the pile-shoe, and securely fixed in position. The average weight of a cast-iron mild-steel shoe for a concrete pile 12 in. by 12 in. in section is about 54 lb., and about 60 lb. for a 14 in. by 14 in. concrete pile.

Pile-Driving with Explosives.—Piles may be driven by means of an apparatus which automatically inserts an explosive cartridge of gunpowder, etc., between the head of the pile and the ram. At every blow a cartridge is exploded, and this raises the ram or weight in readiness for the next blow, so that, when started, the machine becomes self-acting.

Weight of Pile-Driving Monkey.—For hand pile-drivers, the monkey usually weighs from 5 cwt. to 15 cwt.; for steam pile-drivers, a monkey or ram weighing from 10 cwt. to 30 cwt. is used. Reinforced-concrete piles should preferably be driven with heavy monkeys or rams and short falls. Light monkeys with high falls tend to shatter concrete piles. For large works, machine pile-driving, with heavy rams and short rapid falls, gives the best and most economical results.

Safe Load on Piles.—The safe load (in cwt.) supported by a pile may be ascertained from the following formula:—

$$\text{Cwt. of safe load for pile} = \frac{W \times H}{SD}$$

where W = weight of monkey or ram, in cwt.;
H = height the ram has fallen, in inches;
D = distance the pile is driven by the last blow, in inches.

REINFORCEMENT FOR CONCRETE PILES.

Arrangement of Reinforcement.—Each concrete pile is provided with a cast-iron or steel shoe, and is usually arranged with a number of steel rods (four or more) running throughout the whole length of the pile. These longitudinal reinforcing-rods are held in position and securely braced together by means of a series of small-size steel-rod or bar hoops spaced at short distances apart. In some cases the longitudinal steel reinforcing-rods are held in position by means of stout steel wire or rod hooping, which is wound spirally throughout the entire length of the main reinforcement at intervals of a few inches. Whilst the general principle underlying the arrangement of the steel reinforcement in concrete piles is the same, there are numerous modifications as regards the details of fixing, sizes and sections of steel used, etc., which have been introduced by various firms who have made a speciality of reinforced-concrete pile design and construction.

CONCRETE FOR REINFORCED PILES, ETC.

Comprising Portland cement mixed with sand (or fine aggregate) and coarse aggregate, broken and double-screened, to pass 2 in., but not 3-16 in. mesh, including mixing, wheeling, depositing in position, and well ramming in the mould around the reinforcement, attendance in seasoning, and removal to site, and stacking in readiness for planting in position, etc., complete (exclusive of reinforcement casings, or moulds, etc.)

| Gravel or ballast aggregate (30s., 6s., 6s., 6s., 6s.) | Per ft. cube. |
|--|---------------|
| Concrete 1 to 5 (1: 1½: 3) | 1.8 |
| " 1 to 4 (1: 1½: 2) | 1.9 |
| " 1 to 3 (1: 1: 2) | 2.1 |
| " 1 to 2 (1: 1: 1) | 2.4 |

| | |
|--|---------------|
| Broken stone aggregate (30s.; 6s. 6d.; 10s. 6d.) | Per ft. cube. |
| Concrete 1 to 5 (1:14:21) | 1 4 |
| " 1 to 4 (1:14:30) | 1 4 |
| " 1 to 1 (1:14:30) | 1 4 |
| " 1 to 3 (1:14:21) | 1 5 |
| Broken granite aggregate (30s.; 6s. 6d.; 10s. 6d.) | |
| Concrete 1 to 5 (1:14:21) | 1 6 |
| " 1 to 4 (1:14:30) | 1 6 |
| " 1 to 1 (1:14:30) | 1 6 |
| " 1 to 3 (1:14:21) | 1 7 |

ANALYSIS OF PRICES FOR CONCRETE IN REINFORCED PILES.

| | |
|---|---------------|
| IX.—Concrete 1 to 4 (1:14:21) with granite aggregate screened to pass 1 in., but not $\frac{1}{2}$ in. gauge. | Per ft. cube. |
| .25ft. cube cement at 50lb. per ft. cube = 24lb. s. d. | 0 12 |
| at 30s. per cent ton of 2,200lb. | 0 12 |
| .25ft. cube sand at 15. 6d. per yard cube | 0 4 |
| .25ft. cube broken granite at 16s. 6d. per yard cube | 0 5 |
| 1.44ft. cube of dry materials. Cost | 0 11 |

Value of labour in measuring, mixing, wheeling, and well working and ramming concrete in moulds around reinforcement, in small quantities, including water, extra labour, etc., removing to site and sticking where required.

| | |
|---|-----|
| Add for establishment charges, use of plant, and profit, say 15 per cent. | 0 2 |
| Per ft. cube. | 1 7 |

MOULDS FOR CONCRETE PILES.

| | |
|---|------------------|
| Use of moulds, casings, &c., for casting concrete piles, square or rectangular in section, and of any length required. In quantities of not less than 12 ft. of same length in section. | Per super. s. d. |
| Ditto circular or polygonal in section, and ditto ditto | 0 4 |
| Note.—Add to preceding items if in quantities of not less than six piles, and not exceeding 12 piles of same length in section | 0 5 |

REINFORCEMENT OF CONCRETE PILES.

| | |
|---|----------------|
| Mild steel rod or bar reinforcement, bent or cranked to shape, including all necessary cuts, straps, hoops, ties, &c., and wiring same in position with annealed wire, where required, and suspending in moulds ready for concreting | Per cwt. s. d. |
| Ditto, including belting, and do. do. | 15 6 |
| Pile shoes | 16 0 |
| Mild steel or cast iron in pile-shoes, drilled for and including all necessary steel wrought-iron straps fixed to same, including and fixing to ends of steel reinforcing rods, and placing in position in concreting moulds complete | 15 6 |

DRIVING REINFORCED CONCRETE PILES.

| | |
|--|---------------|
| Pitching reinforced concrete piles, not less than 14 square inches in section, and cube, driving in ordinary ground. | Per ft. s. d. |
| Ditto ditto in tide work | 1 3 |
| Pitching sheet or small piles, under 14 square inches in section, and driving in ordinary ground | 2 0 |
| " ditto in tide work | 2 0 |
| Add extra for driving piles from barges or floating stages | 0 6 |
| Note.—Add to preceding items if in small quantities | 25p.c. |
| Allowance for bracing and erecting pile | Per job |
| erecting, lifting, and driving piles, and works, including removal at completion | £5 |

REINFORCED-CONCRETE PILES COMPLETE.

Exclusive of Planting in position and driving. Comprising Portland-cement concrete, steel reinforcement, and use of moulds, etc., complete.

N.T.—For detailed prices and descriptions of concrete, steel reinforcement, moulds, etc., see preceding items. Prime cost of gravel at 6s. 6d., broken stone at 10s. 6d., and broken granite at 16s. 6d. per yard cube, steel reinforcing-rods at 8s. per cwt., all delivered on site of work.

| | |
|---|----------------|
| Including 3 per cent. (14lb.) of steel reinforcement. | Per foot cube. |
| Gravel concrete (1 to 5) | s. d. |
| " (1 to 4) | 4 2 |
| " (1 to 3) | 4 4 |
| Stone concrete | 5 1 |
| " (1 to 4) | 4 4 |
| " (1 to 3) | 4 5 |
| Granite concrete (1 to 5) | 5 2 |
| " (1 to 4) | 5 3 |
| " (1 to 3) | 5 4 |

Approximately, about 40 per cent. of the total value of concrete piles represents the cost of labour, and the other 60 per cent. is the cost of materials and moulds, whilst one-half of the latter amount (30 per cent.) is the average cost of steel for reinforcement. Taking the cost of granite-concrete

piles (1 to 4) with 4 per cent. of steel reinforcement as being 5s. 4d. per foot cube, an analysis of the cost of each item, including establishment charges, profit, etc., is as follows:—

| | |
|---|---------------------|
| Materials for granite concrete (1 to 4) | Per ft. cube. s. d. |
| Labour mixing and placing concrete, including removing piles, &c., to site ready for pitching and driving | 0 6 |
| Use of materials for moulds | 0 8 |
| Labour making moulds, including fixing and removal | 0 32 |
| Materials for steel reinforcement | 1 7 |
| Labour preparing and fixing ditto | 1 12 |
| Per ft. cube. | 5 4 |

The estimated cost of labour in making concrete piles as described above amounts to 1s. 11d. per foot cube, whilst the materials for concrete, moulds, and reinforcement cost 3s. 5d. per foot cube, of which 1s. 7½d. is for steel in reinforcement, etc.

A detailed examination of the prices for reinforced-concrete piles also shows that the difference in the ultimate cost per foot-cube for the stronger descriptions of concrete, as compared with the weaker mixtures, is generally very slight. Thus, granite concrete 1 to 4 costs only about ½d. per foot cube more than 1 to 5 granite concrete, as the expense of making concrete, provision of moulds, and steelwork remains the same in both cases.

REINFORCED CONCRETE FOR SPECIAL PURPOSES.

The varied uses to which reinforced concrete is being adapted is rapidly extending. Not only is it employed for ordinary building and engineering work, but drain-pipes, water-pipes, and conduits; telegraph, telephone, and lamp posts; railway sleepers, cash-bars for roof-glazing, barges, horse and cattle troughs, tanks, factory chimneys, fencing and gate-posts, etc., are now being manufactured of this material.

Telegraph-Posts, Etc.—These are generally cast horizontally in moulds, and, after seasoning, are removed and erected where required. In some cases, however, telegraph-poles have been cast vertically in position. A hole is dug in the ground for the base of the pole, the mould and steel reinforcement erected, and the concreting completed.

Some satisfactory tests have been made with reinforced-concrete telegraph-poles manufactured by the British Improved Construction Company. The poles were 44ft. long, of square hollow section, 17in. square at the base, and 8in. square at top, the concrete being 2in. thick throughout. The reinforcement consisted of 3-16in. steel wires held together by 11-16in. by 1-16in. steel ties spaced 2ft. apart.

In Germany the "Schlender-Rohren" patent process is largely used for the manufacture of reinforced-concrete poles, tubes, piles, etc. These telegraph-poles, etc., are hollow, and consist of a patent composition of cement, sand, and asbestos with a reinforcement of steel wire. They are made on a specially-designed moulding-machine, which is so arranged that it revolves at a high velocity for about ten minutes after each pole is made. It is stated that by this operation the density and strength of the concrete is greatly increased. Large numbers of these telegraph and telephone poles have been used in Dresden, Leipzig, and other German cities. They may ordinarily be obtained in lengths up to 45ft. long and 16in. diameter, but larger sizes may be obtained if required.

Trolley-Wire Poles.—The Cleveland Electric Railway Co. have constructed and erected trolley-wire poles of reinforced concrete. The cost is stated to be slightly more than similar steel poles. The advantages are, that no periodical painting is

required, and it is considered that they will last longer.

Lamp-Posts.—In the United States, lamp-posts, 25ft. long, 8in. dia. at base, and 5in. dia. at top, have been constructed and erected at a cost of about 32s. each, exclusive of the first cost of making the mould. The posts weigh about 10cwt. each, and are made with stone aggregate, broken to ¾in. gauge, the concrete being mixed in the proportion of 1 cement, 2 sand, 4 parts stone aggregate, and reinforced with four ¾in. dia. steel rods.

Railway Sleepers.—These were tried experimentally some years ago on one of the English railways, and the results obtained by the use of reinforced concrete sleepers were, on the whole, considered to be satisfactory. In Germany, sleepers made with a mixture of cement, sand, stone, and asbestos, and reinforced with steel rods, have been found to combine the elasticity of wood with the strength and durability of steel and concrete.

Reinforced Concrete Fencing Posts.—These have been used on several English railways. The original cost is usually slightly higher than for erected fir posts, but they are found to last longer. The average cost of concrete fencing posts is about 2s. 6d. each, or 7½d. per foot run.

Wire fencing, with reinforced concrete posts, strainers, struts, etc., and five lines of steel wire, may be constructed for about 1s. 4d. per yard run. Reinforced concrete gate-posts cost about 6s. each.

Tanks and Troughs.—Reinforced concrete tanks and troughs have been adopted in many chemical works with satisfactory results. The concrete resists the effects of acids, and is durable.

Flooring Joists.—In the United States, reinforced concrete flooring joists are manufactured for use in ordinary houses and buildings. Each joist has a wooden fillet secured to its upper edge, to which the floor-boards are nailed.

Drain- and Sewer Pipes.—Reinforced concrete is admirably adapted for the construction of sewers and conduits *in situ*, and has been extensively used for such purposes. Cast concrete tubes and pipes, with spigot and socket-joints, and reinforced with wire netting, helical wire expanded metal, etc., are also largely used. The concrete tubes or pipes made by one firm are reinforced with 3-16in. diameter steel wire wound spirally with 3in. spacing. The standard sizes vary from 12in. to 48in. in diameter, the concrete being from 1½in. to 3½in. thick. The pipes have a flat base, and are provided with spigot and socket-joints. Similar pipes, of egg-shape section, and varying from 12in. by 18in. to 40in. by 60in. section may also be obtained.

On the Continent and in the United States, concrete drain-pipes varying from 4in. to 30in. dia. are in ordinary use. They may also be obtained with glazed surfaces, the glazing being performed by means of machinery. Pipes up to 12in. dia. are usually made with 1 part cement to 2 parts sand, and completed without any reinforcement. Concrete tubes and pipes larger than 12in. dia. are generally made with 1 part cement, 1 part sand, and 2 parts gravel not exceeding ¾in. gauge, and reinforced with steel wire or netting. The average prices for concrete pipes and tubes are as follows:—

| | |
|---|----------------------|
| Concrete tubes or pipe, 9in. dia. | Per ft. run. 1s. 3d. |
| Ditto ditto 12in. dia. | 1 0 |
| Ditto with steel wire reinforcement, 15in. dia. | 2 10 |
| Ditto ditto 18in. dia. | 3 9 |
| Ditto ditto ditto 21in. dia. | 4 0 |
| Ditto ditto ditto 24in. dia. | 4 9 |

Reinforced Concrete Barges.—Flat-bottomed reinforced concrete barges have been constructed for towing purposes in carrying coals, earth, etc. The concrete

was composed of 1 part cement, 1½ parts sand, and 3 parts aggregate, broken to 7 in. gauge, and reinforced with steel wire 3 in. and expanded-metal sheeting.

(To be continued.)

PATRIOTISM IN ARCHITECTURE.

By C. F. A. Vosey.

If we make no effort to discover the foundations of our taste, we shall be easily borne away in the floodtide of fashion. And association appealing more to the heart than the head, will override reason and leave sensuous emotion to carry us on to the bottomless pit of Post Impressionism. It is only a matter of degree how narrow or debased our taste may become if we lose the balance of the senses—that is, the proportionate use of reason and emotion, whether it be on the side of emotionalism or intellectualism, of spirituality or materialism. The human pendulum is for ever slowly swinging from one extreme to another, and we are for ever struggling to arrive at a happy mean. The present age shows a strong tendency to swing towards the development of our initiative faculty, leading to conformity and eclecticism, away from the individual, creative, and idealistic manner. In this collectivist attitude we see a vast amount of deadly conventionalism, which is a form of tyranny oppressing the young and old alike. It is too easily assumed that the majority are like sheep, to be penned in and controlled, and that it is not safe to leave them free in any direction. In matters of art conscience is no longer to be our guide, but some Cabinet Minister, with his catallies of self-satisfied advisers. In short, a Minister of Fine Arts is to be set up to impose the Order of the Parthenon. A desperate endeavour is now being made to dominate men's conduct and to create what its advocates call a

"NATIONAL STYLE."

By imposing a definite Order of architecture on the young, and likewise upon the unfortunate competitors for public buildings. Our educational system is based on the assumption that some foreign architecture is a fit study for an English student. And he is given every encouragement to travel in foreign lands, and by such means to gain fluency in the language of architectural forms without the laborious study of the national character and conditions that have given them their birth. The architects then can write books to prove from their certain characteristic forms are derived, absorbing attention in superficial likeness, and missing the deeper points of difference, which, when examined in conjunction with climate and character, will be found to constitute the only vital and enduring qualities worthy of our study. It cannot be denied that it is far more important to know from what general principles good work is produced than to have a knowledge only fitted to reproduce given examples. How certain forms and methods have been introduced by the importation of foreign workmen is important enough, but what should concern us much more is how far any importations are fitting and desirable, and sincere and honest. Now we realise that in all the finest examples of architecture throughout the world we find that the qualities we admire are due to the faithful use of local materials and conditions, the sincere expression of national character and aspirations; both of which qualities are strongly influenced by

CLIMATIC, AND ALSO GEOLOGICAL, AND GEOGRAPHICAL, LOCAL CHARACTER.

The climate of a country affects the light, and the light affects our enjoyment of textures and colours quite as much as of light and shade. Who has not felt the unsuitability of highly polished marbles, mosaics, and highly glazed surfaces in England, and their absolute fitness under Eastern skies? Do we not readily associate bright surfaces and colours with strong sunshine, and rich sombre colouring with our cloudy skies? The effect of climate on the character of a people

has been proved by many scientific writers, and needs no repeating here. It is enough to observe the characteristics of local material as evidenced in our own country. Even different counties and districts will show a marked difference in character. Compare, for instance, the colour and texture of the materials in Westmorland with those in Kent. Let us mark well this characteristic of the finest architecture, viz., that it grew mainly out of national conditions and national character, and was never a foreign importation. And a national style can grow up in no other way. We must recognise our conditions, material and intellectual, if we would obey the Divine law of fitness. Are we working now on this principle? Are we not setting up a model drawn from foreign lands, and endeavouring to squeeze our arguments into it? Only recently in public an architect was holding up to the admiration of his audience photographs of American railway-stations designed as closely as possible on the model of ancient Roman baths. Should we, therefore, design Roman baths on the model of American railway-stations? What wonder if the people by old barns and convert them into houses, forgetting that if they are good barns they must be bad houses, and if good houses bad barns! As if good architecture were not the direct product of the purpose of the building. The general custom is to set the heart on a symmetrical facade and then squeeze our plan into it, making dark passages and lobbies, rather than upset the symmetry. But not often do we use draught, rattling wood sash, instead of stone windows and iron casements, in order to produce a Renaissance character in our building? We do not give the same size window to a closet that we give to our banquetting hall, if it happens to come on our main front? How often do we see puny little villas using the manner of a dual palace, porticoes and empty niches, cornices and broken pediments, provided for the villa rented at £70 or £80 per annum! Showing clearly that the outside comes first in our calculations and the plan afterwards, and that we are wedded to a form that is not born of the parent of practical requirements, but the foster-child of a foreign-bred fancy. The style is designed from without inwards, not as it should be from within outwards. I will not plead for either Gothic or Classic, but only that conditions and requirements shall dominate inside and out, and, above all, that the expression of thought and feeling shall be national and sincere. We do not want Chinese national character expressed in Pécadilly, any more than Grecian in Italian streets. We do not want the poor man's villa to ape the stately home of the wealthy. The more we go to Rome the less we shall know of London. The freshness and charm of foreign lands has belittled our reverence for our own country. And we are apt to forget that our Maker has given us a climate and country different from all other nations. We cannot ignore this fact without loss of patriotism and national dignity.

FITNESS IS A DIVINE LAW.

and the more we investigate Nature the more we become impressed by its fitness; therefore we do not look on the same lines, and strive diligently after fitting forms. We do not fit to use foreign styles to express English thought and feeling? The English architect down to the end of the Tudor period was content to learn and understand all the conditions of his own country, to understand the character of his own countrymen, and to express their emotions and aspirations. He was anxious to test the possibilities and limitations of his material, and, in order that we may benefit by his experiences in this direction, we should study all the pure English examples we come across, never forgetting that it is only unalterable technical qualities which we most need to learn, and not those accidents of passing fashion, or the changing manners and customs of different periods, which are so important that we should notice, for instance, the way the stone in different districts was used, rather than the existence of battlements or moats, which tell not of the history of buildings so much as of the manner of life of the people. In our

admiration for ancient examples we are apt to imitate the forms of obsolete features and miss the practical and essential truth concerning the fitting use of material. We are fascinated by the marbles and mosaics of foreign countries, and fail to perceive how they expressed the quality of mind of the nation; the quality of light in their native land, no less than the geographical and geological conditions out of which they have grown. The disregard of national character and national needs and conditions is the foundation of nearly all our unpatriotic conduct and sentiment. How few of the rising generation know to what extent the old Gothic builders in England revelled in colour and rejoiced in rich displays of harmony and human emotion. Those were the men who never travelled abroad—never journeyed to foreign lands with any audacious intention, or made love to foreign examples of their craft, but erected noble buildings out of the bounty of their own land and the brotherhood of their own national character, and their own history, hopes, and aspirations, exactly as the Greeks and Romans, Italians, Spaniards, Chinese, and all the nations that ever produced a national style did. But, alas! the later Englishman has been unfaithful; he has turned his back on his own climate, and hardly speaks of it, except to abuse it! And he has opened his arms to all the foreign material he can lay his hands on. And he raves about the most un-English architecture he has got, regarding it as so magnificent that all practical considerations must be waived for the purpose of providing an æsthetic approach to it. Men are quicker to discern likeness than difference, and any trivial likeness between one object and another in our memory is carefully treasured, especially if that memory gives us pleasure. We are content with trivial pleasurable sensations, without troubling to look for more sterling qualities of structure. The fact that our St. Paul's is well proportioned and gives us a pleasing sense of light and shade, and is big, justifies its existence in many people's eyes. But that it is a clever man's copy of a foreigner's expression of his own national character—albeit a foreigner's wise and clever use of his own conditions and requirements—never seems to be considered as in any way a proof that

ST. PAUL'S IS AN EXOTIC

and not a national growth. It is not the product of our climate or the outcome of our national life. It is a national growth of the most prolific period of our race. The few wealthy who could afford to travel were intoxicated by what they saw, and they quickly lost their hearts to foreign beauties. And the universal law that we strive to reproduce what we love and admire led them to tear down their English houses and erect Italian, Renaissance, French, and other foreign examples in imitation of what they had seen and in boastful proclamation of their foreign experiences. We are only now gradually awakening to the consciousness that the ravishing beauties of foreign architecture are always due to their being true and noble expressions of national character, governed by reverent regard for local conditions and materials. As a general principle we must therefore regard that Nature's material qualities are more beautiful than anything that man can produce, though man may aid and enrich the beauty of Nature by the addition of his own beautiful thought and feeling. The recognition of this will vastly strengthen our patriotic feeling, and, while encouraging a true appreciation of our own country, it will likewise help us to appreciate other countries more rationally. It is of very great importance that we should get at the truth of this matter, because our present method of education and the practice of our profession is steadily leading to an artificial mode of expression independent of the practical necessities of life. Our town halls, banks, and universities are all the creations of a few hasty and hasty children of foreign parentage. And there is an effort being made to coerce the shopkeepers into the same mould. No matter what their trade may be, they must manage their business as best they may behind the Renaissance shirt-front. As if true architect-

ture were the expression of a cultured traveller, rather than a stay-at-home craftsman's endeavour to use local material fitly, to minister to individual needs and requirements.

THE TOWN-PLANNER IS A COLLECTIVIST; his idea is to drill humanity into line and regulate his outward movements regardless of his inward needs. He, too, regards the general aspect and ignores individual necessities. He must have building lines and symmetry, regardless of individual tastes and requirements. He would have our tastes and requirements regulated by Act of Parliament—the deadliest machine ever invented when used to coerce taste. Acts of Parliament we need to protect the weak against the strong—to guard an Englishman's true expression of his love for his own country, not to force him to adopt the language and manners of a foreigner. The vista may be a fine model to emulate, and a suitable place for strutting human peacocks and peahens, but for a strenuous practical Northern people it is not a fit and true expression of their needs to be introduced into every speculative suburb. The revival of any style or period of architecture, whether English or foreign in origin, is an evil which tends to retard the due consideration of fitness in all its aspects. If we start a plan for a house with any preconceived example of a Classic temple or a Georgian mansion, a Roman bath, or even a Gothic monastery, we shall be less influenced by the peculiar characteristics of the site, the building owner, or the purpose of our building. And it is from the consideration of these conditions alone that all the finest architecture throughout the world has ever sprung. Moreover, consider how immensely stimulating it is to all human powers to have to evolve your building from such sources. The delight, too, of searching for moral qualities worthy of stimulation by our building is untold, necessitating also an interest in contemporary life and feeling, so keeping our work alive and growing, and avoiding the stagnation of stereotyped conventions of ancient times. But the present method is to accept first a Renaissance conception and then ingeniously squeeze your accommodation into and behind the shell, and classify your requirements to suit your thirst for symmetry. It is like the Chinese puzzle, a tour de force, a clever exercise in cunning, leading to all manner of subterfuges, and as such demoralising to all concerned. It is generally admitted that our English domestic architecture of recent years has advanced much more than the architecture of public buildings and monuments. And I fearlessly assert it is because much of our domestic work has been produced by the method herein advocated, whereas our public buildings are invariably produced on the method condemned. And why? Mainly because the authorities who have to vote the money to pay for them are trying to please the electors, and they know that if they put up a half-marked building—that is, one that is colourably like St. Paul's—no one will venture to criticise their choice or their taste. The word has gone round that St. Paul's is all right, and it has been repeated so often that Mr. Brown and Mr. Robinson find it a very convenient sample of good taste by which to gauge their public buildings; the architect, according to the old German, being the outside jacket, and the added inside embellishments the gift on the gingerbread, in fact, not one of them ever dreaming of the question—Is St. Paul's English? Is it a patriotic expression of our national character? If the importance of a careful study of national character and conditions were fully realised, a student would have little time for travelling abroad, and if by the time he had reached the age of forty-five he had made good use of his country, foreign travel could do him no harm. But forty-five years is not enough time in which to learn everything about the resources and history of our own country. The more intelligent a man is the more he will feel how much more there is to learn than he can ever accomplish. If our modern public buildings are the outcome of foreign travel, who can defend it? Surely they are the dearest, uninspiring piles of

wasted labour and material that any country can show. Successful as dirt-traps and dust-catchers, emphasising the grimy nature of our town atmosphere. Here, then, we surely find in the indications of our wall surfaces clear proof that the desire to add to the detail has outweighed all considerations of fitness to our dirty town atmosphere. Innumerable are the examples of similar conformity to foreign styles, preventing due consideration of practical fitness; durability and cleanliness are sacrificed to imitative convention. The true mathematical proportion and timing of the Orders is regarded as far more important than the adequate lighting or convenient placing of our chambers.

WE OUGHT NO MORE TO TEACH THE FIVE ORDERS TO STUDENTS THAN TO TRAIN THEM IN CHINESE.

Many will say that without the five Orders no sense of proportion can be taught. I do not think that with any Orders you can teach proportion. Proportion is a matter of feeling dependent on general culture and temperament. You may notice that every man of good Orders is regarded as such as the proportions of his body and limbs, when he is sincere in the expression of his sense of proportion it is a reflection of his own bodily frame. We can very well teach the character of materials and their proper use and limitations, but the less we try to teach art the better. Teach ethics instead, and make men think, and art will take care of itself. It would surprise many of us if we were to consider the amazing effect on modern architecture the one study of cleanliness would produce. If we are to avoid dirt-traps inside and out, we must concentrate our ornament and produce breadth and simplicity, both of which qualities demand good material and good workmanship. So by omitting conventional Renaissance detail we should be driven to devote more thought and feeling to the enrichments we have, and in the plain broad surfaces we should feel the necessity of well-chosen, genuine material and a high quality of workmanship. We can never arrive at these qualities if we are working to a definite style of the past. Use the past to supplement your experience of the use of materials, their possibilities and limitations, and not try to be a slave to it. Do not depress young students by telling them they cannot possibly excel the noble men of old. Our increased experience ought to make us more able to excel anything that has gone before. The cultivation of patriotic feeling should make us devote more attention to English material, English conditions, and English public buildings. From our own stigma of being called the most inartistic nation on the face of the globe. Art, being the manifestation of human thought and feeling, must always be individual and national. Furthermore, the emancipation from the tyranny of styles would open the door to brother-craftsmen. We should feel the necessity for the work of the painter and sculptor in our buildings if we only had the acres of machine-made Renaissance ornament. And brotherhood between the arts is what we need to stimulate, and it must necessarily follow the growth of patriotism in architecture. The strongest argument in favour of creating buildings from requirements and conditions, rather than in obedience to any preconceived style or mode of expression, is that it opens the way for the appeal to our higher nature, and stirs up the emotions and moral sentiments. It forces us to consider moral principles and work on definite lines of truthfulness, fitness, and fidelity. We at once see the necessity for investigating and making full use of local materials, the economic conditions that justify imported goods. We are stirred to investigate all new inventions and fresh methods. This state of mind is one of perpetual alertness—on the look-out to seize every new advantage of modern times—and this healthy living condition is the most fitting wherein to recognise the true enduring qualities of life—viz., the moral sentiments. In our admiration for ancient buildings we forget that it is their manifestation of the spirit wherein they are great. The material we see is perishable and bluey. But in the spiritual significance

and expression of moral sentiments they are indestructible. In our familiarity with materials we forget that it is always the spiritual essence that is the life and soul of our work. Not the form of our expression so much as the deep thought and feeling it betrays. Can we not emulate Shakespeare in our architecture? And patriotic feeling express and encourage what is best in our national character?

THE SOCIETY OF ARCHITECTS AND STATUTORY REGISTRATION OF ARCHITECTS.

STATEMENT BY THE PRESIDENT, MR. GEORGE E. BOND, J.P.

It is apparent, from the communications I am constantly receiving from members of the profession, that there exists a considerable amount of misunderstanding, both in regard to the present position of the Society, and to the probable future action of its Council in reference to the above and other matters. Under these circumstances I think it desirable to make the following statement:—

THE RESULT OF NEGOTIATIONS.

As a result of negotiations between representatives of the Councils of the Royal Institute and of the Society, extending over fifteen months, certain proposals for the fusion of the Society with the Royal Institute and the promotion of a Registration Bill were agreed to; but on the scheme being submitted to a general meeting of the members of the Royal Institute on January 5 last, the proposals were referred back to the Council of that body for further consideration.

The members of the Society have, consequently, not yet been called upon to express their opinion on the above proposals by voting; but they have severely and adversely criticised them by correspondence, more particularly with regard to the question and terms of the fusion of the two bodies. The opponents of the scheme on both sides claim that too much was to be conceded for the little to be obtained in return.

THE POSITION OF THE ROYAL INSTITUTE.

The position of the Royal Institute is that it is pledged to Registration, and its Council have appointed a committee to consider the matter, in view of the situation created by the reference back to them of the proposals above mentioned.

THE POSITION OF THE SOCIETY.

The position of the Society is exactly what it was before—that is to say, it is pledged, as always, to Registration, but not to any course of action therein with the Royal Institute, and the Council of the Society will not initiate further steps in regard to the fusion of the Society with the Royal Institute, though they will be prepared to favourably consider and discuss any reasonable proposition in regard to the subject which may be submitted to them by the Council of the Royal Institute.

THE REGISTRATION QUESTION.

In regard to Registration, a new situation has arisen. The Society of Architects has been the pioneer in this movement for considerably over a quarter of a century, and when the Council of the Royal Institute adopted a Registration policy, this enabled negotiations to be opened with them, with a view to the promotion of a joint Bill.

In the early stages of the discussion it became apparent that with regard to one of the main points of the proposed Bill, my colleagues and I, as representing an independent architectural body, could not possibly agree with the view put forward by the representatives of the Royal Institute, and as they were equally determined not to accept ours, the question of amalgamation was suggested to us as a way out of the difficulty; for both parties recognised, as all thoughtful persons must, that in the present congested state of public business in Parliament, a coalition Bill would not have the least chance of reaching a second reading, and that neither party could hope, under these conditions, to pass a Bill through Parliament unless there was unity of action.

FUSION NOT ESSENTIAL TO JOINT ACTION.

As, however, the Council of the Society of Architects has laid down in the proposals for the fusion of the two bodies the minimum which they can recommend to their members to which they can recommend their members to accept, and as these proposals have been severely criticised by the members concerned, it would seem unlikely that further progress can be made in this direction; but there remains the alternative of continuing the negotiations with regard to a joint Registration Bill, and we are prepared, and, indeed, desirous of continuing them, hoping thereby to establish that unity of action which is essential in that case to success.

THE QUESTION OF INDEPENDENT ACTION.

The opinion has been very freely expressed by many influential members of both bodies that in order to secure the passage of a Bill which will protect the interests of all practising members of the profession, and not merely those belonging to one institution, it is an essential condition that the Society of Architects shall continue its existence as a powerful independent body.

I may here state that at the time the negotiations with the Royal Institute were first opened, the Council of the Society had formulated a certain course of action in regard to the introduction of the Society's Registration Bill into Parliament, and the machinery which then existed is still available, and should it eventually be found impossible to make progress in any other way, that machinery will be set in motion. In other words, we are prepared, if necessary, to resume at any moment that active independent propaganda hitherto so successfully pursued, but which we temporarily suspended in order to consider another means of attaining the same end.

PRESENT AND FUTURE DEVELOPMENT IN THE SOCIETY.

Having made clear the present position as between the two bodies, and the policy of the Council of the Society in regard to the Registration question, I would now call attention to the fact that the work and activities of the Society in other directions are being carried on exactly as before, without reference to any matters pending between the Councils of the Society and of the Royal Institute.

Various schemes of the greatest importance to the development of the Society and its work, which have been held in abeyance during the negotiations referred to, have been resumed, and are being actively prosecuted. Among these may be mentioned the institution of a Council of Ethics, the development of the Students' Section, and the introduction of graded examinations, involving the reorganisation of the qualifying examination for membership, in connection with which latter the Council are seriously considering whether or not, at an early date, admission to the Society in any class shall be restricted to those who have qualified by examination.

MEMBERSHIP IN THE SOCIETY.

Until further restrictions are imposed it is open to any qualified architect who can do so as a candidate for the membership of the Society, and on satisfying the Council of his eligibility and qualifications by production of evidence of the standard required in lieu of other examination, to be proposed for election.

Architects who are in sympathy with the proposals for Registration will appreciate the fact that the Society of Architects is the only architectural body which has made Registration one of its chief aims, and which is pledged to secure that end by one means or another; and it is on this account particularly that the Society has a claim to the support of all qualified architects on whose behalf it has consistently and persistently advocated and upheld the principle of Registration for so many years. The fact very frequently of bitter opposition and misrepresentation.

The Society is a powerful and strongly established institution, with a total membership of nearly twelve hundred. It has its own premises and every facility for extending the

scope of its operations and for the ultimate attainment of its principal object. It is incumbent on those who are with us in principle to be also with us in person, and I venture to express the hope that every eligible architect who possesses the necessary qualifications and is in sympathy with the aims of the Society will consider it his duty, apart from the personal advantages to be derived, to give to the Society that material and practical support which can only be evinced by joining its ranks, and thus still further strengthening and consolidating its position and influence.

GEORGE E. BOND.

President of the Society of Architects.

28, Bedford-square, London, W.C.

March 25, 1912.

REINFORCED CONCRETE.

A lecture on the subject of reinforced concrete was delivered by Mr. E. P. Wells, J.P., Concrete Institute, on March 18, at the London County Council School of Building, Fernside-road, Brixton, S.W., when over one hundred persons were present. A subsequent demonstration was given in the Mechanics' Laboratory of a new piece of apparatus which had been devised by the Institute in connection with the School. Mr. Arthur R. Sage, and Mr. A. E. Everett, of the determination of the modulus of elasticity of concrete, which is being used in connection with the class instruction in the theory and practice of reinforced-concrete construction, given by Mr. H. Kempton Dyson, Secretary of the Concrete Institute, and assistants. The following is a summary of Mr. Wells's lecture, in connection with which forty-three lantern slides were shown:—

The practical side of reinforced concrete, Mr. Wells contended, was of the utmost importance, in view of the poor quality of workmanship ordinarily employed. The increase in the use of reinforced concrete since 1900 has been great, due to the fact that architects, engineers, and others had become convinced of the possibilities of the material. It had been proved to be more economical than steel-frame construction used in buildings—in some cases a saving from 15 to 20 per cent. being effected.

The design of reinforced concrete opened out a great field for efficient instruction therein, which the London County Council School of Building was giving. In reference to drawings the lecturer advised the use of single lines varying in thickness, for showing the reinforcement, the advantages being in preventing confusion, in being more quickly seen, in not tiring the eyes so readily as two lines, and in saving time. Referring to materials, he stated that cement should be kept free from dampness, cold or damp air, and stored in airtight bins, and that it should be tested directly if was delivered on the site of the works, and then, if quick use was required, three-day tests should be made. For soundness the Châtelier tests were sufficient. An instance was referred to of some church foundations where the cement, having been damaged before use, the concrete showed dampness throughout its entire length, and was easier to excavate after being down twenty years than the clay underneath it. The present-day cement was more liable to hydration than that of twelve to fifteen years ago, owing to its greater fineness.

The sand used in concrete should be absolutely clean and free from dirt, and the grains should not be the same size; the concrete being more homogeneous, impervious to moisture, and stronger. Great care should be exercised in the selection of the water, which should be thoroughly clean and free from vegetable matter and salts that were deleterious to concrete; salt water itself did no harm, but it was advisable not to use it, owing to its hygroscopic nature. The steel employed should conform to the British Engineering Standards Committee's Specification and tests should always be made periodically, to insure that the quality did not fall off.

It was advisable to have cubes of concrete made on a job, and to test them, whatever time of the year, keeping one set under laboratory conditions and another under the

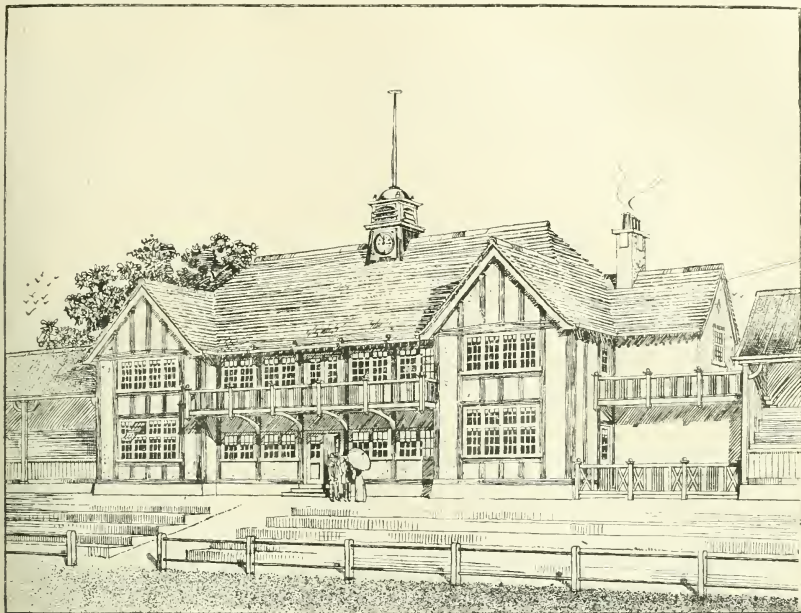
same conditions as those under which the work was carried out. That would form a gauge as to when the concrete on the works reached the strength required to take up the stresses for which it was designed, so that it should be known when it was safe to remove the centering. The centering should not be made of light material; otherwise, on its removal, it might be found that the sides would have bulged out and settlement taken place throughout the work. This was not only ugly, but required extra expense in plastering. Centering should be so constructed that it could be removed when it was safe to do so, without the timber. In some cases it was more costly to pull down than to put up. The area of the base-plates under struts should be sufficient to carry all the loads on them, or else settlement would occur, which would probably result in large shear cracks in the beams over the supports and destruction of the adhesion between the steel and concrete. Once concrete was put into place, it should on no account be disturbed. The centering should be left up for a minimum period of three weeks, except for floor slabs, and the sides of beams, which might be removed within seven days; but should the compression tests disclose a low crushing, then the centering should be left in place from four to six weeks, or even longer.

Efficient superintendents were essential if the work was to be carried out in the manner designed; lack of attention in this direction often resulted in serious accidents. Referring to the placing of steel, the lecturer had sometimes employed small concrete blocks, slightly dovetailed in section, and lightly reinforced, which were laid at the bottom of the beams, ensuring that the rods were the proper distance from the bottom and sides of the boxes, and preventing any displacement from the calculated positions required. The concrete should be of a wet nature, to enable it to flow readily round the reinforcement, and to do away with excessive ramming and liability of damage to the reinforcement. An advantage of using dry concrete was that it attained its maximum strength at a much earlier period than that of a wet nature; but at the same time oxidation of the steel might set in, due to the concrete being too porous, and also the adhesion, in most cases, would be weakened. If, on removing centering, large aggregate were found on the surface, with an insufficient amount of sand, then such portions should be covered with a wash of cement grout, and a one to one sand and cement mortar forced into the interstices, and finished off with a wooden float.

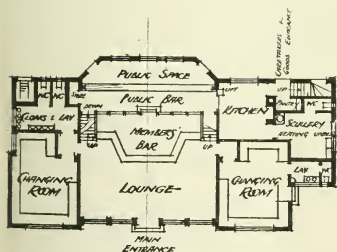
A mistake as regards floor finishing with granite or granolithic was to adopt too high a finish for the work, the consequence being that the initial set was broken up before the surface was completely finished. The remedy was to at once trowel the floor and then leave it. But if a smooth surface were required it should be rubbed over with holystone and sand. After the whole works were completed final testing by loading over at least two days to an excess of 50 per cent. beyond that for which it was designed, was often done. If the work had been carried out properly, then the deflection of the floor, if tested should, after the load had been taken off, be entirely recovered and return to its former state.

Mr. H. Kempton Dyson, lecturer on Reinforced Concrete and Structural Engineering at the school, in proposing a vote of thanks, stated that the course of instruction given at the school was one of the most complete in the world, although it had no competition in England, and that the London County Council School of Building was first and foremost in devoting great attention to the practical side, by means of lectures and workshop practice, for which many tools and much apparatus had been obtained, and he contended that without such practical study designers of reinforced concrete could not be thoroughly efficient.

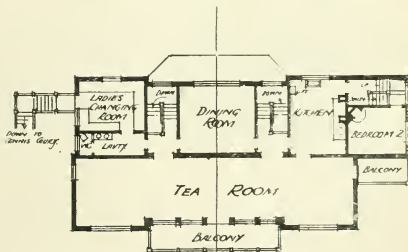
It was stated at Lloren Pronomory Council that Aberdeen ratepayers would go on strike, and, sooner than pay rates for a proposed sewerage scheme, sweep to the streets with "Long Tom's" the heights anyone who came to demand payment.



NEW PAVILION, DUDLEY CRICKET CLUB: DESIGN PLACED FIRST.—Mr. A. T. BUTLER, F.R.I.B.A., Architect.



• GROUND PLAN •



• FIRST FLOOR PLAN •

DUDLEY CRICKET PAVILION.

SELECTED DESIGN.

The Worcestershire County Cricket Club are arranging for a number of their county matches to be held at Dudley, and therefore a new pavilion was felt essential. A limited competition was held, and the design illustrated was placed first, and is now in course of erection. The accommodation on the ground floor consists of lounge, 30ft. by 25ft., changing rooms, members' and public bars, and caretaker's accommodation. On the first floor is a tea-room 60ft. long with a dining in addition. There is also a ladies' changing room with a foot-bridge leading to the tennis lawns, and further caretaker's

rooms. Brick, half-timber, and roughcast are used for the walls, and hand-made tiles for the roofing. Internally most of the rooms will be finished with V-jointed matchboarding in 3in. widths, stained green. Messrs. E. Hadley and Sons, of Old Hill, are the builders. Mr. A. T. Butler, F.R.I.B.A., of Dudley, is the architect.

THE POTTER'S ART.

To broaden the interest in the museums of the county borough of Stoke, and particularly the ceramic treasures to be found at Burslem, Mr. A. J. Caddie, the chief curator, has had a number of lantern slides of

the best exhibits prepared, and it is his intention to give a descriptive lecture on the subject in different parts of the area. His first lecture was delivered in the Prince's Hall, Burslem, on Thursday week.

Mr. Caddie opened with an allusion to the earliest history of the potter's art in North Staffordshire. Many, he pointed out, were under the impression that the local industry was "as old as Mow Cop," but really, potting, as we know it, in its systematic development, was quite of modern origin. Apart from Roman pottery, the local industry did not date beyond the early part of the 17th century. Dr. Potts, the historian of the county, visited the district in 1690, and

CURRENTE CALAMO.

It is best to say little with regard to the fair and lucid statement of the President of the Society of Architects, which appears in another page, till the alternatives he indicates have been considered and discussed by the members of the Society. Briefly, we still think amalgamation the best policy, fully conceding that no one need be surprised that many members of the Society evidently do not think so, after recent events at the Institute. A joint Registration Bill, supported by the two independent societies, may be practicable, but we doubt it. As also the prospects of passing a Bill solely in response to further independent propaganda by the Society. That when the period for the reception of Licentiates by the Institute has expired, a renewed and considerable accession to the membership of the Society may follow is quite probable. The Society's single qualification for membership may very possibly have its attractions for some who chafe at what they consider the limitations of the Associates at the Institute. Of the ability of the Society to maintain its activities there can be no doubt whatever.

The disastrous coal strike has, we fear, administered a worse set-back to our own great group of industries than the railway strike did last year. At least sixty thousand workmen of one trade or another are out of work, mostly in the provinces, and by reason of the refusal of the railway companies to carry plant and material. There is nothing for it, we suppose, but to grin and bear the ineptitude of the Government, and the obstinacy and shortsightedness of those who forced the contest. This is no time to stir up party rancour or blame the non-performers of impossibilities. But what every business man, whatever his politics may be, must be asking himself to-day is why, when this strike was threatened before Christmas, was not Parliament at least promptly invited in February to do then what it has done now, and why were not the futile negotiations got through at the same time? We are, indeed, fearfully and wonderfully governed!

Science and Art were well represented at the Coal Smoke Abatement Exhibition last Saturday. Sir William Richmond's speech was a welcome complement of that made by Sir William Ramsay, and both taken together should prove irresistible pleas for use and beauty. We believe earnestly that, however, hastened, the day is near when the English people will no longer be contented to be smothered and poisoned because nothing must be done "in restraint of trade," or of greed and stupidity; and when Englishmen will revolt at doing the slavish work of the miner, under any conditions, or for any wages.

It is indeed, as Sir William suggested, an extraordinary anomaly that we should still dig up our light and warmth and energy, and send it up in lumps by rail where it is wanted, at three times its first cost, only to be wasted when used in the prodigal and pernicious fashion that has made England a "Black Country." In a little country like this, long ago, by pipe or wire, our fuel, power, light, made in the pit itself or at its mouth, ought to have been distributed cheaply and universally throughout the land.

With electricity at a hundredth of a penny per unit, the coal-scuttle will vanish to reappear, possibly, like the warming pan, in future "artistic adornments" of the walls of the lovers of the curious. Cheap power will stop the further herding of the factory worker into huge cities of slums, and once again we shall see the clear skies and the unsmirched Bowers, and save the soap it takes to wash away the twenty-seven pounds of soot every Londoner gathers about himself yearly.

We give elsewhere to-day an illustration and description of the model of the King Edward Memorial which is to be placed in the Green Park. Admiral Henderson's reminder in the *Times* of Tuesday is well heeding. He points out that it is "proposed to place it something like 50ft. back from Piccadilly." Considering that it is now advisable, and will some day be essential, to widen Piccadilly by taking in a small strip of the Green Park as proposed some years since when the improvements at Hyde Park Corner were carried out, the Admiral suggests it would be advisable to place it at a sufficient distance back to allow for this. Another generation will certainly widen Piccadilly, a considerable portion of the narrow width of which is taken up by cabstands extending along the Park side. Space at least might be provided for these. The original scheme was not carried out, mainly on account of objections advanced by some to the destruction of a few trees in the Park which it entailed. These could easily be replaced, and the inclusion of a small strip of the Park would not be missed, for it would subtract no part of an open space.

Evidently only very privileged people are to be allowed to visit the new London Museum at Kensington Palace yet awhile, so we can say nothing; but we confess we sympathise with the Mayoress of Kensington's protest in the *Times* of Tuesday against the jarring note introduced by the realistic presentation of the horrors of Newgate, with the figures of the prisoners in the condemned cell, and lying chained on a pallet of straw. The Musée Carnavalet may see fit to keep before the Parisian public the sensational trophies of the Bastille, but the precedent need not be followed in such a collection of historical and artistic treasures as this, at all events while it remains in its present quarters. We do not want a Chamber of Horrors intruding upon the precincts of the birthplace of Queen Victoria and Queen Mary, or the nursery of thousands of London's little ones, to whom Kensington Gardens are a store of happy associations. Some museum organisers are very eclectic. We often used to wonder what the Duke of Wellington's hearse did at Marlborough House, some sixty years ago, when that edifice housed the beginnings of the South Kensington Museum.

The Metropolitan Water Board bears testimony to the disastrous effect of slackness in the building trades on its revenue. From 1899 to 1903 there was great activity in the building trade. The number of new houses erected in Greater London ranged from 27,381 to 25,161 per annum. In the last-named year, however, a continuous decline commenced, and by 1910 the number had fallen to 11,757. There was a corresponding fall in the new water services laid in Water London, for whilst these were 22,672 in 1899,

they had in 1910 fallen to 10,377. These figures are of double interest. They show, in the first place, a great diminution of income-development, and, in the second place, they reveal that as the arbitrations for the acquisition of the water undertakings were conducted upon the corrected accounts of the late companies for the year ended December, 1902, or March, 1903, the companies had the advantage of the tide of prosperity in the building trade which had been continually flowing since 1893, and was at its full flood from 1899 to 1903, but immediately afterwards began quickly to ebb, and has now again reached the low-water mark of 1892-3.

This is how the money goes! Is it a bad site, was the hospital unwanted, and how many needless "sanatoria" are going up in bad places when the Insurance Act gets into full swing? At a meeting of the Fylde, Preston, and Garstang Joint Hospital Board at Preston on Saturday, the clerk reported that the Local Government Board did not propose to grant any order empowering them to use the Elswick Smallpox Hospital for cases of consumption, as their inspector had reported that the site was not suitable. Alderman Heys (Blackpool) said the Local Government Board had, not answered the question as to whether they could let or sell the building. The building was doing nothing now, and had never done anything, and personally he did not think they would require it for smallpox cases. The place cost £22,000, and was lying idle. Mr. Lightwood (Lytham) moved that a small deputation should be appointed to wait on the Local Government Board and thrash the matter out with them. All the evidence on the spot was to the effect that the site was suitable, and they had been definitely informed by Dr. Sergeant, the county medical officer, and Dr. Fisher that it was suitable. The clerk said the day on which the inspector visited the place had a good deal to do with his decision: it was raining and snowing. The Rev. G. B. Stones (Garstang) said the day the inspector saw the place it was nothing more than a swamp.

The world moves very slowly, and it may dishearten some of the believers in free libraries and free education to recall the fact that neither seem to have saved Assyria, though her people were pre-eminently learned. The library of Assurbanipal contained 20,000 books written on clay tablets, and these are now being translated, one result being the opinion of an eminent archaeologist that the average child of Nineveh 650 years B.C. was better educated than the average child of to-day. Some of the medical treatises are suggestive. Thus we are told that if a man has colic we should "make him crouch down on his heels and pour cold water over his head." Again: "When a man is bilious, rub him with an onion, and let him drink nothing but water, and abstain from food altogether." But if a man is in "a weak state," why should it benefit him to "strike him on the head fourteen times with your thumb"? Was this faith-healing, or the origin of the phrase, "getting him under one's thumb"?

It has been decided to erect a new Sailors' Institute at Holyhead commemorating the investiture of the Prince of Wales in Carnarvon Castle. The contract has been let to a local firm for £1,000. Building operations are to be commenced immediately.

COAL-SMOKE ABATEMENT EXHIBITION AND CONFERENCES.

An international smoke-abatement exhibition was opened at the Agricultural Hall last Saturday by the Duke of Argyll, under the auspices of the Coal-Smoke Abatement Society. At the luncheon, Sir William Ramsay, proposing "Success to the Exhibition," suggested that just as deposits of salt were worked, not by mining the salt, but by brine, so it would be ideal instead of mining coal, to have retorts in the bowels of the earth for the production of gas. A boring might be put down to the coal strata, the coal might be lighted where it was, and air and water might be passed down so as to produce hydrogen and carbon monoxide. The resulting gases might be used in gas-engines at the pit-mouth for the production of electricity, which might be distributed by high-tension currents to any desired point. That would settle the strike problem, and he suggested that the miners should consider very carefully what they were doing, lest it should be found that the country could do without them. The resources of science were not exhausted, and a plan such as he had suggested might enable electricity to be used for heating, at a price of perhaps one-hundredth of a penny per unit.

Sir William Richmond referred to the splendid practicability of Sir William Ramsay's suggestions. When politicians failed, he said, the man of science must come in, because the man of science, who was on the progressive side of the human race, approached the question without any party feeling. It used to be said that the manufacturers did all the mischief in the smoke trouble, but that had been contradicted, and domestic fires evidently contributed an enormous amount of smoke to the nuisance. They had to enlist public opinion on that great subject, and to remove if possible a certain apathy which, he was afraid, belonged to the strength of the English character, an apathy which said: "It did very well for my fathers and it ought to do very well for me." The coal strike might very likely be productive of further scientific investigations, and it might be shown that they could do without coal. The great scientific intellects of this country would not be slow to put their heads together and do what which looked as if it might possibly become a great tyranny. They must admit, however much they were attached to science, that beauty had a great function to perform in the world. It was one which the English people once possessed in very large measure, and he believed they would again possess it in very large measure. If that was so, and if they were again to have a white city, they would find gardens on the house-tops, they would find great cities as had not been known in their great cities for three hundred years, and they would have a healthy people, not effete because they were loving beauty, but a people with energy and backbone.

THE LOAN EXHIBITION.

The Loan Exhibition is not a very strong one, but there are several interesting items. One stand are models drawn to scale of the Clock Tower, the Palace of Westminster and Christopher Wren's dome. Between them is a gigantic square black column, 580ft high and 5ft wide, representing the 76,000 tons of soot which annually fall on London. Analysed, this deposit includes 6,000 tons of ammonia, and 8,000 tons of sulphate, excellent manure if it could be collected and dug into the ground; but descending as it does, the rain from heaven, it has a stinging effect on human beings and vegetation.

A collection showing the effect of smoke on Canterbury Cathedral, is lent by Mr. W. D. Caroe, M.A. F.R.I.B.A., F.S.A., the Cathedral architect.

THE TRADE EXHIBITS.

are divided into seven sections: Smokeless fuels; domestic heating, including coal fire, heating appliances; appliances for heating rooms and buildings; boiler furnaces; testing appliances; fans and appliances for ventilation and the removal of dust; and apparatus

to prevent the emission of dust or grit from chimneys. Some "miscellaneous" articles will also be found which the visitors will group at pleasure!

Messrs. Fawcett and Son, Ltd., have a good assortment of geysers and other instantaneous water heaters.

Messrs. Babcock and Wilcox, Ltd., show one of their patent chain grate stokers, of which there are over 5,200 in use, and which are specially designed for the efficient and smokeless combustion of semi-bituminous fuel. They also show their automatic water-softeners and their steel-stayed and self-supporting steel chimneys.

At stand 89 there is a German "smoke dissipator" which seems ingenious. This apparatus, invented by Professor Dr. Wislicenus, is self-acting without the use of any mechanical or chemical agencies, and does not require attention of any kind. The dissipation turns the upper part of an ordinary factory chimney stack. It consists of a number of perforated bricks of special design, arranged in lines, like a grating. The total exit area of the perforations exceeds many times the exit area of the ordinary chimney. The dissipator on top of a chimney performs dilution of the smoke or waste gases, by mixing a large quantity of air with them, thus neutralising as far as possible their detrimental effects. The air entering the chimney through the perforations at the side, struck by the wind, we were told, causes the smoke or fumes to be whirled round in the very chimney, so that, when they escape through the perforations opposite, the smoke or fumes are already thoroughly broken up and diluted, and, owing to the small size of the perforations, they are still further dissipated, the dissipation increasing progressively with the distance from the stack.

CONFERENCES AND PAPERS.

Conferences of delegates of municipal authorities and other bodies have been held, on the 26th, 27th, and 28th. Sir William Ramsay, F.R.S. (President, British Association); Sir William Richmond, R.A.; and Lord Justice Fletcher Moulton were the respective chairmen. The conferences were divided into three sections, to consider:—(a) Smoke pollution and its effects; (b) Smoke abatement; and (c) Legislation. Among the papers to be considered are those on "The Action of Coal Smoke on Building Stones and Mural Paintings" (Sir Arthur Church, F.R.S.); "The Effects of Town Air on Metalwork" (Dr. S. Rideal); "The Economic Aspect of Smoke Abatement" (Dr. R. Lessing); "Influence of Smoke on Pigment" (Mr. Noel Heaton); "Smashine Records" (Mr. R. G. K. Lemofert, Superintendent Forecast Division of the Meteorological Office); "New Gardens and Smoke" (Mr. W. J. Bean, Assistant Curator, Kew Gardens); "Should the Domestic Smoke Nuisance be any Longer Tolerated?" (Baillie W. Smith, Glasgow); "Progress of the Smoke Abatement Movement in Germany" (Herr Ingenieur Nies); "The Smoke Problem in the United States of America" (Mr. Z. A. Willard, Boston); "Stoking" (Commander W. F. Calborne, C.B., R.N.R.); "Smoke-Abatement Laws in Other Countries" (Mr. Julian Corbett); "Is Further Legislation Necessary?" (Mr. Joseph Hurst, barrister-at-law); "The Proposed Smoke-Abatement Bill" (Principal J. W. Graham); and "A Plea for Appointment of a Royal Commission" (Mr. A. J. Des Vaux, treasurer, Coal Smoke Abatement Society).

On Tuesday, Sir Arthur Church, in the course of his paper dealing with the action of coal-smoke on buildings, stones, and mural paintings, said that St. Paul's Cathedral furnished the most striking instance of the destruction wrought by the sulphuric acid in "The Choir Choir." The blackish stucco incrustation hanging to the inside of the cornice above the colonnade and below the dome. This was some inches deep in places, and contained nearly 74 per cent. of gypsum, or hydrates calcium sulphate. Sulphuric acid was the chief culprit where paintings in true fresco were concerned. The abatement of the smoke nuisance, or even its entire abolition, however great the advantages

to health and comfort, and the amenities of life which it would bring, could not get rid of the injury and pollution caused by sulphuric acid.

Mr. Noel Heaton, dealing with the influence of smoke on decorations, said that decay of the pigments of a mural painting should not fairly be attributable to smoke, for it was quite possible to execute any internal painting or decoration with pigments that were perfectly stable and proof against attack; but there must be sufficient technical knowledge and experience on the part of the artist.

The Hon. Rollo Russell, in a paper on "Smoke and Fog," said the worst offence certainly came from domestic fires, for the darkest fogs had been on Sundays and Christmas Day. Sir William Ramsay, presiding at the afternoon session, when the effects of smoke pollution on animal and plant life were discussed, said that they were agreed that the chief sinners in causing the absence of ultra-violet light were the producers of smoke, and they were met together to do all they could to do away with that pollution.

Mr. J. W. Bean (Assistant Curator, Royal Botanic Gardens, Kew) contributed "A Note on Recent Observations, of the Smoke Nuisance at Kew Gardens."

Miss Agar, landscape gardener to the Metropolitan Public Gardens Association, dealt with the effect of smoke on town gardens. In London, she said, it was very noticeable how premature was the shedding of soft-foliated leaves such as limes. Taking the Royal Albert Park, a tree was in full leaf as five months ago it was in bud, and would be deprived of six weeks of its manufacturing period. No wonder that town trees were sickly and stunted in growth.

COMPETITION AND DESIGN.*

By J. MILTON DYER, F.A.I.A.

In attempting to deal with this subject, it has been extremely difficult to confine myself to the actual effect of competition upon design, rather than to revert to a discussion as to the propriety of competition in itself, and more or less to a discussion of the ethics governing competition. For the purposes of this paper I shall assume that by the term "competition," is meant—competition undertaken under the most ideal conditions, guided by rules laid down and approved, in so far as they have been approved, by the American Institute of Architects, that is: (1) Competition limited to a certain number of architects, and open to all architects; (2) limited, certain architects being invited, but other architects being at liberty to take part. The Institute, by recommending that, except in cases in which competition is unavoidable, an architect be employed upon the sole basis of his fitness for the work, tacitly, at least, takes the stand that the effect of competition upon the practice of architecture and upon the architecture itself, is for the most part good. The New York Chapter, however, admits that for public and semi-public buildings competitions may be desirable; other chapters make the minimum amount a building should cost in order to warrant a competition. Now, as a matter of fact, notwithstanding the view of the Institute as a whole, and the individual views of the several chapters, possibly every man in this body has participated, to a greater or less extent, in competitions, and each one has been guilty very closely in the ratio to his prominence in the profession, in spite of the great economic loss to the profession, and of its being "a game of chance." To properly describe the effect of competition upon architecture would require an analytical comparison of the work of representative architects, won in competition, with other of their works executed after direct selection, and taking all the attendant conditions into account. Much has been said upon the ethics of the competition, but very little upon the actual influence of competition upon architecture, and I have to admit that it is a very broad subject, and that, perhaps, in the future, an adequate paper on this subject

* Paper read before the American Institute of Architects.

may be written. Upon receiving an invitation to enter a competition, and upon receipt of the programme and requirements, one realises that he is taking up a new and strange problem, and is dealing with an unknown owner or committee; the personnel of the jury may or may not be known to him. In either case, the economical idea of the plan may often be worked out independently—that is, the disposition of space and materials, the arrangement of the various departments, the one with the other, circulation, etc., may be determined irrespective of any supposed idiosyncrasy on the part of the jury; but even in the case of the plan, this independence is only too often influenced by a vague mistrust as to the personal likes or dislikes of the jury, concerning some particular arrangement, thus preventing an individual and heartfelt expression of the solution. After the plan has developed to an advanced stage, one may surround it with four walls punctured with holes, or attempt to give those walls architectural expression and a character which denotes the intended character of the building. Here, again, one's thoughts turn to the approval of the owner and his expert advisers, rather than to a courageous, independent, impulsive study of the problem. You are afraid to be impulsive, to play with the motives, to do the thing you, yourself, feel; you may not win; you may not have the favoured "parti." While it is true that the most important element which is lacking in a competition, and which must, therefore, affect the final result, is the inability to get into touch with one's client, and thus develop a solution, nevertheless the viewpoint of the expert adviser and jury itself affecting design is greatly responsible for the prevailing desire to sell one's soul to the jury; and it is possible we should have for any one of the Council of Jurors, as well as for the Conduct of Competitions and Competitors. Must we, in competitions, be eternally constrained to the use of an order? Is there no value in wall-space? The late Mr. John Carrere has said that one argument advanced in favour of competition has been the desire to discover new talent, and added, "If you have talent his day will come, and it should not come until he is prepared to make use of it. A man who has genius to express original ideas on paper is, nevertheless, not to be intrusted with the execution of the work until he has acquired the requisite experience, for when it comes to the serious work of actual building, he requires not only the experience of the practical side, but the practical artistic experience—the experience that knows that a thing that looks well on paper represents a thing that is going to look well in execution; and that refers to every detail of the work, the very texture of the material. It requires unique experience, which cannot be acquired by any man, no matter what his genius may be, without practical experience. No man, in the safe, dignified, substantial way in which to obtain recognition in the profession is to gain your clientele through the excellence of your executed work, the importance and volume of which will grow as rapidly as it deserves; nevertheless, it has been my experience that the presence of a serious competition in the office does develop the men, from the head to the toe, by the working draughtsmanship, the knowledge of the principles of design, and the faculty of quickly expressing one's thought on paper. An esprit de corps is created in the office, for here is a real competition, something more than a school problem, and, naturally, all take a keener interest in the result. Great good is accomplished in the ateliers of our larger cities, and the competitions instituted by the Beaux Arts Society and by several magazines, but the efforts of all in collaboration, working in an office upon a serious competition, develop not only draughtsmanship, but a real conception of architecture in its higher meaning, such as many months of routine work may not accomplish. A great number of competitions, even in some of our best known offices, have been won by clever young designers, developed under these conditions of training. While this should not necessarily warrant these men being selected as architects, it nevertheless demonstrates that the system of conducting competitions does

stand for training in design. It is equally true that a number of these young men have, through the medium of competitions, developed into some of the prominent architects of the country, and have shown, by their subsequent work, that they were prepared to make use of their talents. The Tarsney Act, approved February 20, 1893, authorising the Secretary of the Treasury to submit plans and specifications for public buildings, paved the way for a better architecture in our Federal buildings, and, in turn, has, since its adoption, reacted upon the work of this department of the Secretary of the Treasury, until, as Mr. Glenn Brown, in his review of 1906, states: "Under the Tarsney Act it must be conceded that the work is immeasurably superior to any building done by the Government from 1890 to 1896, and it, together with the merit system, which now rules in the office, has been a material factor in uplifting the character of the work done by the corps in the Supervising Architect's office during the past six years." Since 1897, under the direction, and with the advice and assistance, of the officers of the Institute, programmes have been made by the Supervising Architect for scores of important Government buildings throughout the country, and the result has been public buildings of an excellence of design and execution heretofore unknown in the United States. These competitions, however, have affected design to an enormous extent. The type of architecture in our Government buildings, as well as other municipal and semi-public buildings, has for the most part become circumscribed. Before the drawings are sent in it is almost possible to foretell, within small limitations, the general character of design of the contestants. It is always the base story with a superimposed order, enclosing one or more stories, with perhaps an attic, or the order will extend from the ground through all the stories. In any case, it is almost sure to be an order, and, as before stated, the value of plain wall space in design seems to have been overlooked. This use of the order as the main feature of a building, with several stories enclosed in its height, is seldom successful, and probably never when more than two or three stories are included. Why does competition insist upon a Government type requiring our architects to crowd these many stories within the order, thus making corridors of the rooms within, by reason of the usual depths, or rooms too large for an economical arrangement of space, when the logical expression of an economical plan demands that the wall openings be made subsequent to this plan? In other words, while the character of architecture should proclaim the dignity and purpose of the building, why should the arrangement and lighting of the interior be sacrificed to the everlasting order? Does the fact of the order in competitive design spring from the belief that the form of architecture is really the established form for public buildings in the United States, or is it to be laid at the door of our system of conducting competitions? If the latter be true, I again affirm that the cause lies in that inborn desire to win, and the competitor, in order to do so, gives the jury that official type he believes the jury wants, to the absolute prostitution of purpose of the building, and the sacrifice of practically all competition judgments to prove that he is correct. The jury does demand the recognised official type. It therefore appears to me that, in competitions, the jury and expert advisers exert fully as much influence upon design as the competitor himself. The official type of public buildings, whether for government or a municipality, is the offspring of the competition as at present conducted, and, in turn, influences, and very often determines, the type for many buildings forming part of a grouping plan, such as is being developed in many of our larger cities, thus condemning the whole group to a type which most surely will not be the last word in architecture, the expression of public buildings. Much that has been herein stated may also be said concerning competitions for buildings of a commercial character. With a possible exception, as in the case of those problems of great monuments which are purely artistic in their character, and which

may require the collaboration of the sculptor or decorator, taking into consideration the present status of the competition, I believe the best method of securing an artistic, as well as a practical, result, is by the direct selection of the architect. But the fact that competitions have been conducted in Europe, and especially in France, for many years with undoubted success, exerting a marked and beneficial influence upon architecture, and the willingness on the part of most of our ablest architects to enter competitions, with, as a result, hundreds of successful monuments attesting their skill; and the fact that perhaps more time of the Institute Conventions is devoted to the consideration of the problems pertaining to competitions than to any other subject, indicate that while the perfect code for the conduct of competitions, competitors, jurors, and clients has not yet developed, nevertheless we may be gradually, through a slow but progressive process of education, evolving a system which may eventually enable competition to exert a beneficial effect upon design in architecture.

DOMESTIC ARCHITECTURE.

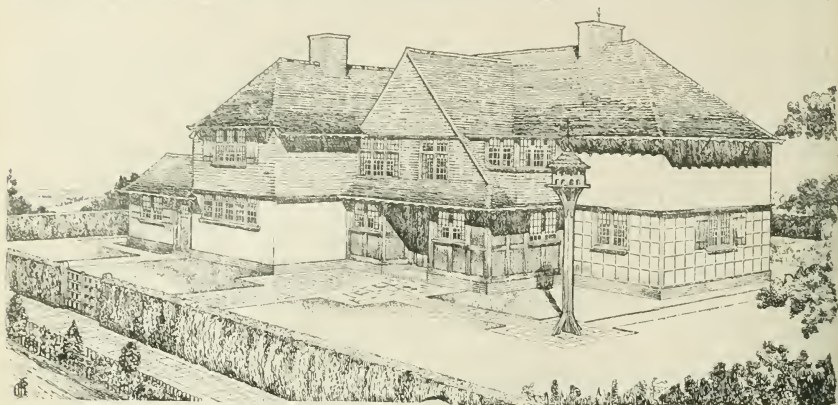
A NEGLECTED ART.

At the Building Trades Exhibition at Rushmore on Thursday week, Mr. Laurence Weaver gave us a lecture on small Country Houses. His object was not to show us how they may acquire comfortable country homes for modest sums of money, but to make them realise that domestic architecture is a serious fine art. It was difficult, he said, to make people realise this. But until they did, and until they allowed to those who practised the art reasonable liberty to do what was necessary in order to express themselves in the manner of their art, the development of domestic architecture must be restricted. Of the best of the English work we had reason to be proud. He believed it was not only the best architecture of its kind of its time, but the best of any time. In comparing modern houses with the great historic houses of the country, we must remember the freedom of the old architects from the difficulties which faced the modern. In the old days there were none of the numerous contrivances for comfort and sanitation which now had to be provided and hidden away in the walls. Domestic architecture must be reasonable; people could not be persuaded to live in fantastic houses. Its success depended first of all on its convenience, and, secondly, on its beauty. Mr. Weaver pointed out, by means of a series of lantern slides, how the restoration of domestic architecture in England, which he dated from the building of William Morris's "Red House" by Philip Webb, was a return to old traditions. He laid stress on the importance of following local traditions, and he expressed a hope that the great movement for the restoration of the old buildings would be formed a local school of architecture based on local traditions.

Mr. Edgar Wood, who presided over the meeting, said that although the best of English domestic architecture was unequalled in the world, the great mass of our town buildings were deplorable. The blame did not rest on the thoughtless architects; the great sinners were the public. The solution of the problem seemed to be some form of public control over building; but it would be impossible to make much improvement until the public took more than its present apathetic interest in architecture.

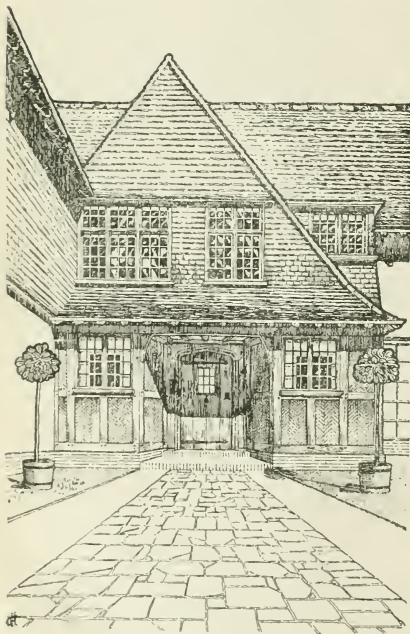
The Great Western Railway Company has intimated to the Board of Trade that it proposes to remove the existing pontoon pier and approach at Neyland, and to construct upon a portion of the site of the approach an open-piled wharf, about 350 ft. long, below high-water mark, and 30 ft. wide. The wharf is to stand at 14 ft. above the surface of the shore.

There have just been erected, in Quinton-road, Coventry, new headquarters for the 4th South Midland (Howitzer) Brigade, Royal Field Artillery. The headquarters buildings include drill-hall, gunners' barracks, band-stand, and store-rooms, men's recreation-rooms, canteen, and house for the brigade sergeant-major. The whole place is 2½ c. by electricity.

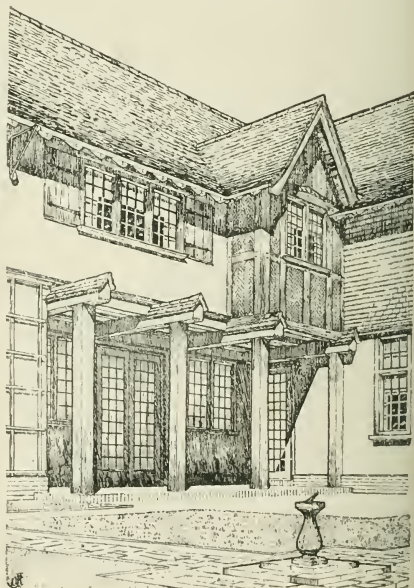


IDEAL HOUSE (COST £1,100), ERECTED AT IDEAL HOME EXHIBITION, OLYMPIA.

Mr. R. C. FRY, Clifford's Inn, Architect.



THE MAIN ENTRANCE.



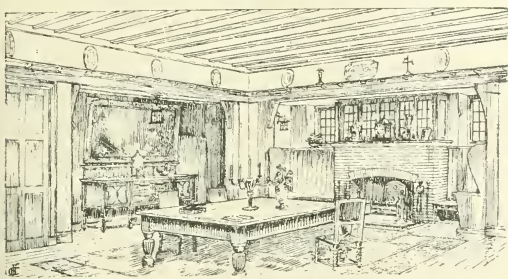
THE LOGGIA.

THE IDEAL HOME EXHIBITION. Preparations for the Ideal Home Exhibition, which is to be held at Olympia from April 12 to 30, are already well in hand. Of "The Miracle's" Gothic cathedral not a vestige remains, and in its place is rising what will be a display of everything which goes to make our homes comfortable, convenient,

healthy, and beautiful. Some three hundred firms will be represented, and it is estimated that the total value of the exhibition will be about £100,000.

The enterprise will embrace a Dutch village of two and a half acres, complete with canals, twenty-five buildings, 50,000 flowering tulips and hyacinths, craftsmen at

work, a farm, an eleven-roomed house, perfect in every detail and built under Olympia's roof at a cost of £2,000; forty rooms, each furnished in the modern styles of England, France, Belgium, and Holland; a 25ft. waterfall and water garden, and a table-dressing display organised by H.S.H. Prince Alexander of Teck. Every requisite



THE DINING-ROOM.

for the house will be on view, and the Ideal Home Exhibition will serve to introduce a number of new inventions of considerable importance in domestic matters.

The House, of which we give four illustrations, is from the design of Mr. Reginald C. Fry, of 12, Clifford's Inn, and is being erected by Messrs. H. and G. Taylor, of

life, and, in the best sense of the much-abused word, an "impressive" one. He first introduced the element of picturesqueness into art. She sketched the old-world legend of St. Ursula and the eleven thousand virgins, which Carpaccio so finely painted, and then went to speak of the famous group of painters who, at one and the same time, were



THE HALL.

Parklangley, Kent. The normal cost is £1,100, but as it to be built at Olympia in ten days, and was only started at 9.30 a.m. last Wednesday, it will cost there £2,600.

VENICE AND HER PAINTERS.

At Liverpool on Monday, a lecture, illustrated by many lantern slides, was given by Miss Jessie Macgregor, the well-known artist, on "Venice and Her Painters."

Miss Macgregor endeavoured to account for the admitted supremacy of the Venetians in colour by pointing out that, owing to her trade with the East, Byzantine traditions in art lingered longer in Venice than in the rest of the peninsula, and that the one great merit of the Byzantine school had been its richness of colour and effect. Drawing attention to the difference between Florentine and Venetian art, she said that the appeal of the latter was less to the religious emotions and the intellect than to the senses. This was because, after the death of Giovanni Bellini, "the heart of Venice," in the words of Ruskin, "was in her wars, not her worship."

In Venetian art, three distinct periods could be traced—(1) the Vivarini epoch corresponding with the Grosseque period in Florence, although it flourished nearly a century later; (2) the Bellini epoch, terminating in 1516 with the death of Giovanni Bellini, who was the greatest religious painter of Venice, and the father of the Venetian school; and (3) the age of culmination, which produced Giorgione, Titian, and Paul Veronese. Carpaccio she described as an unconscious illustrator of contemporary

pupils in the school of Giovanni Bellini, chief among them being Giorgione and Titian.

The lecturer then enlarged upon the astonishing precocity of Giorgione, between whom and Titian a rivalry soon sprang up, and spoke of the difficulty of distinguishing his pictures from the earlier works of Titian. Passing on to a review of Titian's methods and of his principal works, Miss Macgregor said that, in her opinion, Titian was not a great religious painter, but a portraitist of the first rank. She then briefly sketched the career of Tintoretto, "the little dyer," describing the independence of his character, the impetuosity and originality of his fiery genius, his self-will and industry, the speed and force of his brush, and the methods he adopted to attract attention and secure patronage. Particularly dwelling upon his work at the school of St. Roch and the Ducal Palace, Paul Veronese and Tintoretto, she remarked in conclusion, were the last of the great painters of Italy.

GERMAN FORESTRY.

At the annual meeting of the Midland Reafforesting Association at Birmingham, an interesting lecture on "German Forestry and its Lessons for England" was delivered by Professor Fraser Story, Professor of Forestry in the University College of North Wales, Bangor, and expert adviser to the association.

The lecturer remarked that the Englishman was apt to regard forestry as a hobby, and to associate trees with beauty and romance. He never dreamt of tree-planting as an industry, or of timber as a commodity necessary for the well-being of the community. Germany, on

the other hand, had fully realised that aspect, and for more than a century the country had systematically pursued a definite afforestation policy. A fourth part of the total area of Germany was given over to the production of timber, no less than 35,000,000 acres bearing the cover of trees. The annual revenue from these forests was something like £38,000,000, double what it was thirty years ago, while many thousands of people gained their livelihood in the forests. Half of the forest area was in private hands, and most of that was interfered with by the State. Over 10,000,000 acres belonged to the nation as a whole. The remainder was under corporate control, belonging to municipalities and institutions such as the Midland Reafforesting Association, and the Government subsidised many of these. The State-owned forests, in particular, were admirably managed. They were supervised by an army of trained officers, who were an extremely fine set of men, and they were much the most profitable, bringing in larger returns in timber and in money than the private woods. The quality of the timber was also influenced for good by the more skilful treatment which the Government forests received.

The German Government was constantly buying waste land in order to extend its forest area. Prussia added some 140,000 acres annually, if one took the average for the last forty years. The forests were distributed fairly equally over the country. To the north there was pine; to the west, oak and beech; in the south, the spruce and the silver fir, which were the two trees principally cultivated for their timber. As to the position in England, if only we would conduct tree culture with the same earnestness with which we pursued agriculture, all would be well. Nothing would be achieved until the Government took the matter in hand. The private owner was handicapped on all sides, and, if he had the will, he seldom had the means to afforest. From its nature, the length of time required, the large scale on which operations had to be carried out, and, above all, the importance of continuity of policy, forestry was an undertaking more suitable for the State than for the private owner. The latter should be assisted, as the private owner was in Germany, by the provision of better facilities for education in forestry, by the giving of technical advice on the treatment of his woods, and by the free distribution of plants. Probably, however, nothing would benefit him more than to see well-managed State forests springing up and there, from which he could obtain practical suggestions. The chief usefulness of the Midland Reafforesting Association lay in two directions—in transforming blotches of ugliness into places of beauty, and in doing pioneer work for the great afforestation industry.

SHOP-FITTINGS.

A MOST USEFUL TRADE CATALOGUE.

Messrs. Harris and Sheldon, Ltd.'s, 250-page general catalogue of shop fittings has just reached us. We find in it some 4,000 illustrations, descriptive of every branch of the shop-fitting industry; this, it is claimed, being the largest list of purely shop-fittings issued by any firm in the world. Not content with the ordinary number and alphabetical index, Messrs. Harris and Sheldon have inserted a "quick index for busy people," which was really rendered necessary by the multiplicity of their manufactures.

The firm actually manufactures everything, from a small metal socket or window-arm to the larger and more complete counter, glass showcase, or shop-front. Their manufactory is situated in the centre of the brass shop-fitting industry, and the present high state of efficiency obtained by their goods has only been arrived at after the application of several generations of artisans to this specialised industry. A firm that will take the trouble to give full satisfaction with respect to an order for a gross of ticket-clips (as they do), or, on the other hand, in the execution of an order running into many thousands of pounds, such as Messrs. Whiteaway, Laidlaw, and Co.'s new premises in

Our Illustrations.

THE AMALGAMATED PRESS NEW PREMISES, FARRINGTON-STREET, E.C.

The freehold of the site on which this very large and commodious new building is now being erected cost £58,000, and the new offices of this important company will entail an outlay of £75,000. The total area of the land on which the building stands is 22,000 square feet, and the height of the structure from basement to roof is 90ft., its contents being about one and a half million cubic feet; the floor area is three acres, and there will be over five acres of plastering on the walls and ceilings. The plans given show the ground and first floors. The basement will be occupied by printing plant. There are 120 rooms for offices, and two electric passenger lifts running at the rate of 250ft. per minute. There is also an automatic lift for use of the staff. There are well over two thousand people on the permanent staff to be accommodated. No radiators will be used, but the floors of the corridors will be laid with a prepared material in which the heating pipes will be embedded, so that the floor itself will radiate the heat throughout the corridors. Mr. Herbert O. Ellis, of Fenchurch-street, E.C., is the architect.

NEW CATHOLIC CHURCH AND PRESBYTERY, RAMSEY, I.O.M.

This building stands in an exposed position facing the sea, and is not orientated. The external walls are hollow, the outer thickness being of rubble, obtained from old buildings demolished on the site, and the inner thickness of smooth local bricks. In the church these have been imbedded instead of plastered. The stone used for the church windows, the doorways, and arches, etc., is "Bramley Fall." The roofs are covered with greyish-red sand-faced tiles. The interior of the church is kept plain and simple except at the (quasi) east end, where a coloured and gilded triptych gives a centre of interest. The altar and reredos are of grey Forest of Dean stone. On the (quasi) south side are the Lady-chapel, baptistry, and vestries. At the (quasi) west end is a choir gallery under the tower arch. The internal length of the church is 76ft. 6in. and the width 22ft. It has no aisles. Since the photographs were taken, a set of Stations of the Cross, carved in wood and coloured and gilded, has been added. The benches shown in the interior view are temporary. The contractors were Messrs. Sherwin and Son, of Boston, Lincolnshire. The triptych was made and carved by Mr. G. Ratcliff, of 2, Millow-street, Old-street, E.C.; the pictorial panels were painted by Miss Burdison, of 2, Elm-row, Hampstead, and the remainder of the colouring and gilding was executed by Mr. G. Tosi, of Beacham-place, Frompton-road, S.W. The wrought ironwork throughout the church is by Messrs. W. Reinbridge and Reynolds, Ltd., of Old Town, Clapham, S.W. Mr. G. Gilbert Scott, of Gray's Inn, is the architect.

SKETCHES IN CAMBRIDGESHIRE AND LINCOLNSHIRE.

The subjects of these sketches, made by Mr. J. E. F. Cowper, whilst Pugin Travelling Student, 1911, are so well known that little description is necessary of any of them. The grouping of the roofs, leading up gradually to the broach-spire of St. Mary's Church, Frampton, is very fine, and this view from the south-east shows best how this effect is obtained. The lead and tiled roofs, the warm, mellow colour of the stone, and the lofty towers behind form a most delightful study of colour, and serve to soften the somewhat masculine lines of the tower and spire excellently designed. The spire and tower of St. Leonard's, Levington, is one of the most successful of the many attempts to weld the spire into the tower. This is achieved at Levington by the use of small parapeted turrets placed over the spire buttresses. This arrangement gives a continuous outline with no awkward breaks at

the angles, so that even when seen on the diagonal the combination is good and insures a satisfactory contour. All Saints Church, Paston, is a small village church near Peterborough. The combination of the tower and spire here is very typical of the whole county, but otherwise of no special interest. The sketch of the Market Hall, Peterborough, shows the end elevation, which we do not remember to have seen illustrated before. The subject has often furnished picturesque studies showing the building as a whole; but the present partial drawing has the further advantage of being very suggestive.

By an unfortunate printer's error the address of the Beaver Board Co., Ltd., whose speciality we commented upon in our issue, was printed as 16, Chenside, instead of 16, Eastcheap, E.C.; hence the reason for the return of the letters of several of our correspondents. Will they kindly address their inquiries again to Dept. B, The Beaver Co., Ltd., 16, Eastcheap, E.C.?—when the company will be happy to send their booklet on the advantages and possibilities of the Beaver Board.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL SOCIETY.—Mr. Lawrence Weaver lectured on "The Development of the Renaissance in Scotland," last Friday. Mr. C. Bateman presided. Mr. Weaver pointed out that although most learned works had been written on the Baronial buildings of Scotland, attention had been given to the later work, and that the late and general treatment with that of Sir Christopher Wren and his followers in England. It was notable that the first impact of the reborn Classical taste reached Scotland direct from France, whereas England owed it to an Italian first, and later to Germans and Flemings. At Falkland Palace and Stirling Castle the best evidences of the new manner were to be seen. Sir William Bruce, the architect of the additions made to Holyrood Palace in 1671, was to be regarded as the Scottish Wren, though he fell far behind Wren in personal genius. Still, he was the man who established the full Palladian manner in Scotland, and he was ably followed by William Adam, the father of the famous Brothers Adam.

EDINBURGH ARCHITECTURAL ASSOCIATION.—A meeting of the Associate section of the Edinburgh Architectural Association was held on the 21st inst. in the Association Rooms, 117, George-street, Edinburgh. Mr. W. J. Walker Todd in the chair. Mr. J. Campbell Mitchell, A.R.S.A., gave a lecture on "The Study of Nature by the Student of Decorative Art." The lecturer spoke of the important place which ornament holds in the life and daily surroundings of man, and his instinctive desire to decorate, and make beautiful that which he had found to be useful. He related some lessons to be learned from humble sources—decoration of the cottage doorstep and hearth-stone. Drawings of examples noted during rambles in the country were shown, and the principles which they illustrated were explained. The study of historic ornament, and the importance of the student becoming thoroughly familiar with the plant and floral forms upon which many examples are based were emphasised, and the principles in construction as learned from the study of good ornament, and the characteristics in plant growth which have been made use of by the ornamentalists of the past referred to. The right and wrong application of ornament, and Nature's teaching regarding the laws of scale, distribution and fitness were pointed out. The lecture was illustrated by diagrams, blackboard drawings, and specimens of skins of wild animals, shells, plants, and flowers.

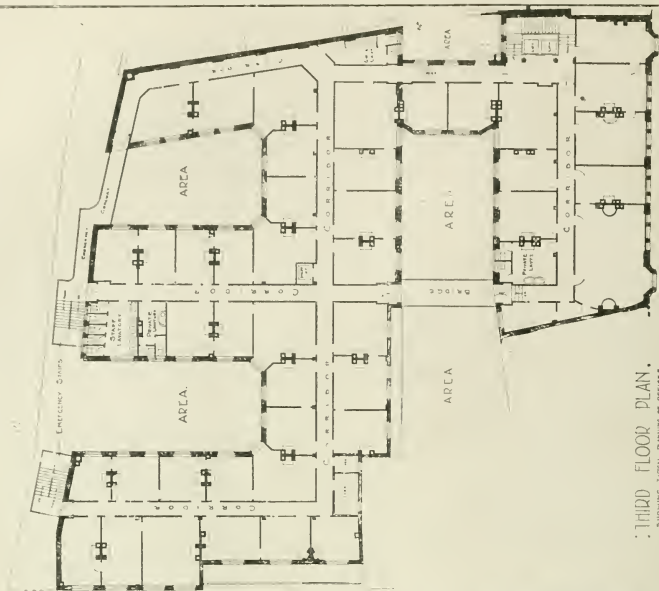
LONDON ASSOCIATION OF MASTER STONEMASONS.—The annual meeting of this association was held at Cannon-street Hotel, E.C., on Thursday, March 14, when the following were present: Mr. Fred Corben (president) in the chair, Mr. C. W. Courtney, J.P. (vice-president), Mr. F.

J. Barnes, C.C., Mr. T. Beckley, Mr. J. Byssouth, Mr. W. Bryant, Mr. William Bryant, Mr. E. J. Fox, Mr. E. Grice, Mr. H. J. E. Lucas, Mr. E. Frank Mortimer, Mr. E. Morris, Mr. W. Pangbourne, Mr. Ernest E. Way, Mr. J. Way, Mr. Walpole Collins (hon. sec. and treasurer). A cordial vote of thanks was accorded to Mr. Fred Corben for the services rendered by him to the association during the past year, and Mr. C. W. Courtney, J.P., was unanimously elected president for the coming year. Mr. Fred Corben, on relinquishing the office of president, becomes ex-president. Mr. Stephen Collins, M.P., and Mr. T. Sturge Catterell, J.P., were elected vice-presidents, and the following were chosen to serve on the committee: Mr. W. Pangbourne, Mr. Ernest E. Way, Mr. J. Byssouth, Mr. Walpole Collins was re-elected as hon. sec. and treasurer.

NORTHERN ARCHITECTURAL ASSOCIATION.—The annual meeting of the association was held at the offices in Higham-place, Newcastle-on-Tyne, on the 20th inst., Mr. H. C. Charlewood, F.R.I.B.A., president, occupying the chair. In their report the council expressed regret that the depression in the building and allied trades continues. The membership was 224 as compared with 233 last year, the decrease being chiefly in the class of Associates. Mr. F. W. Rich and Mr. J. Oswald had been appointed to attend meetings of the sub-committee of the corporation formed for the purpose of Part II of the House and Town Planning Act. The council had made representations to the Royal Institute suggesting that the appointment of clerks of works should, in future, be made by the architects. Prizes had been awarded as follows: Measured drawings (age limit 25), Mr. H. St. J. Harrison; architectural sketches (age limit 25), Mr. W. Milburn; (age limit 21), Mr. H. St. J. Harrison; Glover studentship, Mr. A. E. Loves; design for a pavilion to be erected in an Italian garden in England, Mr. M. K. Glass and Mr. K. Glover. Some of the drawings submitted were well worthy of reproduction. The General Fund opened with a balance of £29 7s. 9d., and closed with a balance in hand of £33 1s. 9d. On the motion of Mr. G. I. Brown, F.R.I.B.A., the report and accounts were adopted as eminently satisfactory. The prizes were presented to the successful students by the president. The following officers and council were declared duly elected for the ensuing session: President, Mr. Wm. Milburn; vice-president, Mr. R. Burns Dick; hon. treasurer, Mr. J. T. Cackett; hon. secretary, Mr. C. S. Errington; hon. librarian, Mr. J. Bruce; assistant hon. secretary, Mr. C. I. Greenhow; council, Mr. G. T. Brown, Mr. H. C. Charlewood, Mr. F. E. Dotechin, Mr. W. T. Jones, Mr. J. Oswald, Mr. A. B. Plummer, Mr. F. W. Rich, Mr. Wm. Milburn, Mr. J. W. Taylor, Mr. C. Walker, Mr. H. Wood, Mr. Ash, Mr. M. G. Martinson, Mr. H. A. Wilson, Mr. J. Hall, hon. local secretary for Sunderland; Mr. J. H. Morton, hon. local secretary for South Shields; Mr. W. J. Moscrop, hon. local secretary for Darlington. The new president (Mr. William Milburn) having been installed, spoke in acknowledgement, saying that if he handed the chair of office to his successor with the association in the same healthy condition as it was at the close of the second term of Mr. Charlewood's service he would be delighted. He moved a vote of thanks to Mr. Charlewood for his devoted work. Mr. R. Burns Dick (vice-president) also spoke, and the thanks of the members were heartily accorded to the retiring president. The hon. secretary (Mr. C. S. Errington) was also complimented upon his work and thanked.

At Alnwick on Friday, a Local Government Board inquiry was held by Mr. A. G. Malet, M.L.C.E., an inspector under the Board, into the application of Alnwick Urban Council for sanction to borrow £4,000 for water supply works for the town. Mr. H. Taylor, C.E., of Newcastle-on-Tyne explained the proposals. There was no opposition.

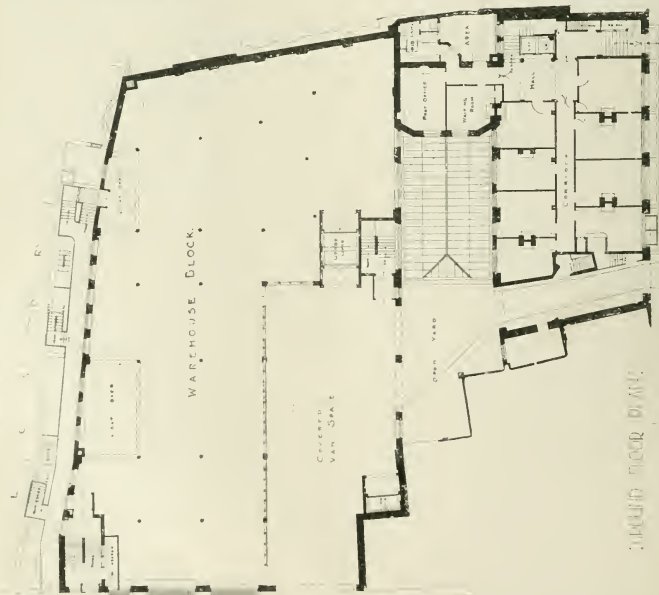
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THE KING EDWARD MEMORIAL TO BE ERECTED IN THE GREEN PARK.

MR. E. L. LUTYENS, F.R.I.B.A., Architect; MR. BERTRAM MACKENNA, A.R.A., Sculptor.

THE KING EDWARD MEMORIAL IN THE GREEN PARK.

The General Committee of the King Edward VII. Memorial Fund, at a meeting held at the Mansion House, have fully approved of the model by Mr. Bertram MacKenna, A.R.A.

for the monument to be erected at the Piccadilly end of the Broad Walk in the Green Park.

The memorial will cost £20,000, and is expected to take four years in execution. It is to be of Portland stone, 43ft. in height, surmounted by a bronze group representing

St. George and the Dragon. On the south side, facing Buckingham Palace, that shown in our illustration from a photograph of Mr. MacKenna's model, will stand a bronze statue of King Edward, with plinth 8ft. 10in. high. The figure, in Garter robes and costume, bearing the Orb and Sceptre, will

upon a table (or two stools), so as to give access all round. Lay a piece of clean paper over the drawing-board, and turn your drawing over and lay it flat on this paper. Slightly damp the back of

[illegible]

[1309*] **PRINTING DRAWING-PAPER.**
From experience I have found that the best methods of dealing with the queries raised are as follows:—
(1) Obtain the best quality of paper, such as is made of a kind of coarse, yellow card-board, but much stiffer. It is sold by weight, and a board to take the size drawings mentioned would weigh about 2lb. and cost about 1s. 6d. (2) Obtain the best quality of drawing-paper, and 3. I have never tried damping the drawings, although I have the linen on the stretchers, and should not recommend this mode of procedure. But I have used the following method:—
(a) Cut the drawing-paper to the size of the drawing, and to the thick paper, and not used too sparingly. No. 4. The best adhesive is undoubtedly paste made of starch, and mixed with a drop of oil of turpentine to halt a paste, obtained from paper-hangers. (See replies re Paste, No. 13094, last week.) I find that a 3-lb. jar will hold enough paste, when diluted with water, to mount 100 drawings, and is sufficient to mount satisfactorily (on linen) five sheets of double-elephant drawings, including margins. The starch is applied with a large round brush, the hair of which must not be so stiff as the painting at the centre, and working in all directions to the edges. Care must be taken to have assistance in applying the paste, and to have a brush always applied, and also to prevent any paste on the face of the drawing around the edges, as it will make a nasty mark, and will require careful manipulation to get it off. No. 5. Prevention of Warping.—How to prevent warping is a question entirely of the thickness of the strawboard used. I use a narrow, a couple of an strips of lining-paper pasted crosswise on the bark will counteract any tendency to "pull out" the corners, and will prevent the drawing from curling up a set of drawings (imperial) mounted on 2lb. boards about three years ago, which I treated in this manner, and which is practically no warp. No. 6. The size required is a medium size, and if the artist can get the size strawboard he requires, as the size is not one stocked by stationers and printers in the country, it is better to get it made to order, in the case of a competition. (b) Obtain a board at least 2in. larger than the extreme dimensions of the required finished drawing. Firstly, on account of the extra size required for the drawing (drawing-paste), and, secondly, the best edge to the mounted drawing is obtained by trimming same to the correct size with a very sharp knife. (c) The drawing, slightly bowed, will require rather more than the skillful handling to look well. (d) To place the drawing in the centre, mark the centres of the side on the drawing, and the centres of the board, and draw these lines in No. 4, skiving care to use a "lean surface" such as a drawing board, and to well work

Take the past. Then the future. Draw away the ink, taking two corners, an assistant taking the other two; gauge by the marks to the centre, straining the paper as near as possible, lay on to the board, put a clean sheet of blotting-paper over the face, and a graphic mounting-board or squeeze, working from the centre in all directions to the edge, so as to remove the ink from the face of the paper. Lay the paper over the face of the drawing, then another board, face downwards, using some heavy weights, and leave for 24 hours. Then, if the ink is to be retained this weight of four, say, ten to fifteen minutes; remove weights, board, etc., and allow to dry for 24 hours. Then, if the ink is to be removed, (a) soak in a lot of the moisture, and must not on any account be used again, as ink and colour-matters are used up; (b) if the ink is to be removed, the other drawings; (c) When dry, trim the drawings as described in (b); (d) The best time to use the drawings is at night, when the room is rather warm from the gas, and it then allows them to dry gradually during the night, and ready for use in the morning. The drawings may be mounted in practically any state—coloured, uncoloured, partially inked-in, etc.; but the nearer the ink is to the face of the paper, the better. The Building Construction, Gloucester Technical Schools.

[illegible]

[3095]—**MOUNTING DRAWING PAPER.**—
For certain reasons, it is necessary for the Equirer to mount the drawings himself. He should select a high quality, and a reputable picture-framing firm. They would supply the boards and mount complete for very little more than the cost of boards, and, having everything done by hand, they would be able to do it better. I might mention that some little time ago I had some caricature drawings mounted on the boards of a picture-framing firm, and, to my regret, each, if Equirer decide to mount the drawings himself, I should advise as follows:—(1) If it is desired to leave a margin round the drawing, it is better to leave a margin of 1 in. all round, than a margin to be left, ordinary strawboards would allow, and are the cheapest obtainable. Bristol boards are better, but more expensive. (2) Do not damp the drawings for mounting or to get rid of any surface dirt, as this will do no harm, and is in fact cause of warping. (3) Allow to stand for a minute or so after the paste or gum is applied, and then brush the surface with a soft brush. (4) If the brush is suitable, and must be of good quality. The paste is cheaper than gum, and cleaner to work with. (5) Do not work the brush too hard, and also the mount, but gum will adhere all right if worked well into the drawing only. A powder called "dextrine," which can be obtained from most chemists, is better than glue. (6) Glue is not so important, and take care that no bit of dust, particles from brush, etc., get under the drawing when sticking down same. If possible, use a large brush, and brush the drawing with the brush, and any paste or gum get on to the face of the drawing.

or margin of mount, same can be carefully washed
oil with water. H. Kendrick, Ulverley Green-road,
Ottom, Warwickshire.

PARLIAMENTARY NOTES.

THE KING EDWARD MEMORIAL. In the House of Commons on Wednesday, Capt. Murray (L., Kincardineshire), called attention to the proposed memorial to the late King Edward in the Green Park, London, and stated that the Office of Works had been asked to place the statue and memorials here, there, and everywhere in the Royal parks. Mr. Whitehouse (L., Mid-Lancashire) said the last thing they should do was to place the statue in the parks, and the museums of monuments. Mr. Noel Buxton (C., Northolt, North) joined in the protest against the proposed statue. Mr. Wedgwood Benn (First Commissioner of Works) said the Office of Works was not responsible for the statue and memorials of the memorial. The only question the House was asked to decide was whether the Office of Works should grant permission for the memorial to the late King to be placed in the Green Park. The question had been suggested, but rejected, for various reasons, by the advisory committee. The proposed site in the Green Park, which was approved by all the memorial committees, had been rejected by the advisory committee, so that in fact the memorial committee nothing at all. Unless they got a free site, the committee would not be able to carry out the full scheme they had in contemplation. The memorial committee had been asked by the late King when he visited the Victoria Memorial, but not in competition with it. The committee proposed to spend five-sixths of the fund at their disposal in the laying out of a park at Shadwell, London, for the benefit of the poor, and to give thousands of the late King's poorest subjects,

STATUES, MEMORIALS, &c.

BIRMINGHAM'S MEMORIAL TO BISHOP GORE. A meeting of the committee appointed to carry into effect the scheme for a memorial to Dr. Gore, formerly Bishop of Birmingham, was held last Friday. Photographs of the reports of the sub-committee, prepared by Mr. Stirling Lee, of London, were presented, and, after some discussion, the committee decided to call a general meeting of the subscribers to the fund, to be held next Monday. The memorial is to consist of a marble tablet to be placed in the cathedral, and a marble mural tablet of a simple nature, to be placed in the cathedral, and a bronze statue, by Mr. Stirling Lee, to be erected in the church at the present time occupied by the Bishop of Winchester (formerly Bishop of Southwark) for the diocese of Southwark. The work which has brought Mr. Lee more prominently before the public is his happy and charming life, the panels in St. George's Hall, Liverpool.

Mr. C. Fitzroy Dell has presented the London County Council with some young peacocks for the London parks.

A Local Government Board inquiry had been held at Selby Town Hall, into the application of the Selby Urban District Council for sanction to borrow £2,000 for purposes of the Small Dwellings Acquisition Act, 1899. There was no opposition.

The Gore Memorial Committee recommend that the memorial to the first Bishop of Birmingham (now Bishop of Oxford) should take the form of a bronze statue to be erected in the Birmingham Cathedral grounds, the work to be entrusted to Mr. T. Stirling Lee, of London.

At Monday's meeting of the Bath Surveying Committee, proposals were adopted for dealing with the Orange-grove improvement scheme, and to obtain tenders for £3,500, including the building of a retaining wall, and that an application be made to the Local Government Board for sanction to borrow the amount.

Mr. H. Pollard, sanitary inspector to the Nantwich Urban Council—a position which he has filled for the past two years to the general satisfaction of the public and the council—has been appointed sanitary inspector at Swadlincote at a salary of £120 a year. The Swadlincote district has a population of 19,000.

Recent results of Messrs. Penningtons, University and Engineering Tutors, Oxford-road, Manchester: Inst. of Civil Engineers, Associate Members' Examination, Messrs. G. Le Huquet, R. B. Dorman, F. A. Watson, J. Wilson, C. Butler, E. H. Pike, J. S. A. Walker, P. Holt, F. A. Davies, E. Jones, G. Stewart, W. L. Tod. Students' Examination, Messrs. R. G. Torrens, J. T. Thompson. No failures.

LEGAL INTELLIGENCE.

CLAIM BY A QUANTITY SURVEYOR.—R. E. Carpenter and Son, quantity surveyors, 112, St. Peter's-road, Leicester, sued Edward Baxter, cashier, 102, Upperhouse, Sheffield, for £4,800. At last week, at the Leicester County Court, for professional services, the Hon. R. A. Loseby, for the plaintiffs, said the defendant contemplated erecting a house, and plaintiff claimed 25 per cent. on the lowest tender sent in for the erection of this house, and £4 10s. in respect of payments for materials. Mr. Carpenter received his instructions from the architect, R. E. the defendant, and was admittedly employed by the defendant, as Mr. Carpenter received a letter from the architect asking him what his charges would be for taking out quantities, a house cost about £500. He replied that his charges would be 25 per cent. plus certain payments. Plaintiff's terms were accepted in writing on November 29, the plan was sent to Mr. Carpenter, and quantities were prepared. Mr. Carpenter, and submitted to Mr. F. H. Wrench, the architect. Subsequently when the tenders were sent in, the cost was far over £500, and he had been then decided not to build. Mr. Wilson submitted the plan to the County Court, within the jurisdiction of the Leicester Court, on the ground that the contract was made in Sheffield.—His Honour overruled the objection. Mr. Carpenter, quantity surveyor, Leicester, corroborated Mr. Baxter's opinion, and said: "When the tenders were opened he believed the lowest one to be £880.—By Mr. Wilson: When Mr. Wrench wrote to him, after defendant had been decided not to build, he said: 'I hope you will meet me over the cost,' he did not know what he meant. He always regarded Mr. Baxter as responsible to him. It was unusual for an architect to take out his own quantities. The plans could not have been completed for £575 on the first day of the month. Mr. Baxter, the architect, 217, Upperhouse, Sheffield, said he got out the plans for a house for the defendant. He told him that he did not take out the quantities, and that someone probably sent them to Mr. Carpenter. The defendant agreed, and witness told him that the cost would be 25 per cent. on the contract price. Defendant instructed witness to get in the quantities as soon as possible, and he got in five, the lowest of which was £880. He was surprised at the cost being over £500, because he did think, almost from the first, that the house required by defendant could not be built for less than £800.—By Mr. Wilson: Defendant cancelled the plans.—Mr. Christopher Silk, quantity surveyor, Birmingham, said it was quite customary for architects to employ quantity surveyors to get out quantities. No builder of any reputation would do so without quantities. If an architect got out the quantities, he charged 25 per cent. on the contract price.—Mr. Wilson, for the defence, contended that there was no case against the defendant. If a debt had been established, it should have been recovered from the architect, because the architect had not signed the contract, and the defendant had not pledged the credit of the defendant. His Honour said it seemed to him to be merely a question of who should pay. There was no question about the work being well done.—Defendant said he gave Mr. Baxter instructions to get out quantities for a house not to cost more than £550. He repeatedly told him not to go beyond that figure. After the plans had been passed by the architect, Mr. Baxter rang him up on the telephone, and asked whether he should get out the quantities. He said this should be an additional cost of 25 per cent., and defendant replied he could if it was usual to do so. He meant by that it was in the contract.—By Mr. Wilson: Mr. Loseby said he did not mention to him that he should engage a quantity surveyor, and he had not heard of the name of Mr. Carpenter until he was called to the County Court.—By Mr. Witheres, president of the Sheffield Society of Architects, said it was not the custom among Sheffield architects to employ quantity surveyors to take out quantities. He only knew two such cases, and in both of them the architect, in giving judgment, said this was not a question of whether Mr. Carpenter had done this work: the question was, who was to pay him? The plaintiff had not, in his opinion, made out that he was entitled to the credit of the work, or to employ the credit of the building owner, or to employ the quantities surveyor. Mr. Wrench sent Mr. Carpenter to work, and he had no authority to pledge the credit of his client beyond £500. Mr. Wrench, for the defence, said: "Defendant asked for a bill of execution for fourteen days, and this was granted. Notice of appeal has been given."

SEA WALL COLLAPSE AT SOUTHEAST.—After considering the evidence for twenty-two days, this action was concluded on Wednesday before Mr.

Edward Pollock, High Court Official Referee. The action was brought by Sir James Henry Sirrine, Mr. W. Van Sommer, and Mr. John Marcus Poer O'Shea, trustees of the Burgess Estate, Southeast, against Messrs. Beadell, Wood, and Co., Ltd., surveyors. Plaintiffs alleged negligence in the execution of plans and specifications, and a lack in the supervision of work carried out by a local contractor in connection with the development of that part of the trust property known as the Tilbury. Sir James, advising the Southchurch Bench, Plaintiffs alleged that one of the results of the negligence was the collapse in the autumn of 1909 of parts of the sea-wall. Remedial work, including the rebuilding of the sea-wall, and the reworking of certain roads, was at afterwards carried out by the engineering firm of Sir Alexander Binnie, Dasein, and Co.—The defendants repudiated the allegations of negligence, and said that the work had been properly carried out. In regard to the collapse of a part of the sea-wall, defendants pleaded that it was occasioned by the effects of a storm.—The Official Referee held there had been negligence in the supervision of the rebuilding of the sea-wall. The plaintiffs were entitled to £6,800, and that the defendants were entitled to £1,269 on the counter-claim, so that there would be a balance judgment for the plaintiffs for £4,810 odd, with costs.

THE CARPENTER ARCHITECT, LADY BUILDER, AND "MEN OF STRAW."—Judge Moss was occupied till a late hour at Rydell Court, in the morning, in hearing a claim by William Parry, coachbuilder, Rydell, and Richard Williams, bricklayer, Rydell, against Mrs. Annie Owen, a lady of independent means, of Rhuddlan, for £121 (reduced to £100 by extras for building site and labour) and for damages for delay in completing the work and for payments made on plaintiffs' account.—Mr. Crabbe, for the plaintiffs, said that, though the defendant knew they were not without means, and that the tender of £125 for erecting her six houses. From the start she had to find them money; then took the whole control of the work out of their hands, and the workmen about, was continually the buildings, and she had the chance of doing other than she ordered. The architect was a carpenter, and the certificates were sent direct to her; all the plaintiffs had to do was to sign them. She insisted on the plaintiffs ordering timber and material, and tradesmen she selected, which, on timber alone, meant an increase of £20. The extras claimed were for what was required, and while the plaintiffs had paid local bills, and left the plaintiffs to the loss of tradesmen, and while the plaintiffs were fighting the case to get money to pay them.—William Parry said that as soon as the contract was signed he had £25 in his hand, and he was going on with, and with the exception of £103 he had the only money he had from the architect's certificate was 6d. which, in a generous mood, the defendant gave him. (Laughter.) One of his brothers had to guarantee him, and he had come to grief over the transaction; another brother used his University scholarship money to finance him in the work. He signed many documents put before him by the defendant, and he was not, though he had not money, that he was doing, being so worried.—Madden, for the defence, put in an unstamped document which set out in consideration of the defendant increasing the contract to £1,300, the plaintiffs were to include the extras, and if the work was not completed by a certain date then the original contract for £1,250 should stand. The plaintiff at first said he had not signed the document; then he admitted the signature, but said it was not his. The Registrar having demanded £10 penalty for the stamp, and £1 his fee, the document was put in.—In cross-examination, the plaintiff said he had built houses, and the defendant knew he had built houses, though he had not money, that he had taken contracts amounting to £1,000. The reason he had first denied signing the supplemental contract was that he signed such a multitude of documents, and did not know what he signed. At first he was the contractor for the houses, but afterwards he was so dawked down that he was nobody. Mrs. Owen taking charge of everything, and being always on the works. (Laughter.) Even the man in the street would not come to him for a house. Owen was about. (Laughter.) Mr. Madden: You were clever enough to get the contract, knowing at the time you had no money. Had you a shilling in the world? More than that.—By Mr. Crabbe: Yes, five times that.—The witness added that the paper put in was a forgery from beginning to end.—Mr. Madden: Does not the charge of forgery come very bad from you who signed a gentleman's

name at Dyssert?—That has got to be gone into, I wrote nothing. I was not entitled to sign. I used to write Mrs. Owen's name at the top of each letter when she was not available, because people would not trust me. She was like as if she was closed in the walls of Jericho. She sent word that she was ill, but when Mr. Jones saw her cleaning the windows, I solemnly swear, as Seldon said, that before God I had no knowledge of what was in the document.—The case was stopped by the Judge asking if it was any use in the case, and it was stopped. The contract put in, which it is down clearly that all extras were to be paid for by the increased price of £1,500. As regards the plaintiffs having to pay extra for a sole, he felt that if the defendant finished the plaintiffs' work, he was entitled to say where they should deal. The plaintiffs, though none of us saw, took a contract for £1,200, and had to be financed from the start. It was evident they drew nothing, not even rent on the certificate. He suggested the counterclaim should be withdrawn, as he knew the position of the plaintiffs.—Mr. Madden said he would take judgment for the defendant, and withdrew the counterclaim, though he could not say that. The Judge said he felt the defendant had always paid in advance. He gave her judgment with costs, and allowed the counterclaim to be withdrawn.

SURVEYORS' FEES: AN ALLEGED CUSTOM.—READING INDUSTRIAL CO-OPERATIVE SOCIETY, LTD., v. PALMER.—The Chancery Division of the High Court, under Judge Justice, heard this case on March 22, 23, and 25. It raised an important question of an alleged custom in Reading and neighbourhood, and also in London, that the purchaser of land for building purposes should pay the fees of the surveyor approved by the vendor; surveyor, was liable to pay the fees of such surveyor; and also a question of construction of the conveyance of land to the plaintiffs. Mr. Frank Russell, K.C., and Mr. J. E. Eggington, for the plaintiffs, and defendants were represented by Mr. Micklem, K.C., and Mr. Stiebel. In opening the case, Mr. Russell said that the action was commenced by originating summons in the first instance, and was then converted into a writ, and the plaintiffs obtained an indenture of conveyance by which certain land, 3½ acres in extent, in Grovelands-road, Reading, was conveyed by Sir Walter Palmer, Bart., to the plaintiffs. The defendants were Messrs. Eustace Palmer, Robert Clarissa Shaw, and Richard Blake Harrison, who were the trustees of Sir Walter Palmer, who had died since the date of the conveyance, which was May 18, 1908. Under the conveyance, the defendants were to pay the fees of the surveyor to the satisfaction of the vendor's surveyor. They had, of course, to pay their own surveyor's fees, and the defendants contended that they had also to pay the fees of Sir Walter Palmer's surveyor. Evidence was given by the plaintiffs in support of the summons, and in the defendants' evidence in answer, they set up a custom that, notwithstanding the contract, there was a custom prevalent that the plaintiffs were bound to pay Sir William Palmer's surveyor's charges, and summons was taken out asking that the case should be put on the list for trial with witnesses, in order that the question of custom could be dealt with. The plaintiffs issued a writ claiming damages, and the defendants' matter came before the Court. The conveyance contained a covenant on the part of the plaintiffs that they would observe and perform the covenants contained in the schedule. After reading the schedule, the Judge said that it was for the defendants to show that anything else was imported into the contract before the parties by reason of a special local custom. His Lordship agreed, and accordingly Mr. Micklem called evidence in support of which he gave in the judgment appearing below.—Mr. Russell called rebutting evidence, and Mr. Wm. Millar, F.S.I., an architect and surveyor who had carried on his profession at Reading for upwards of twenty years, was called as a witness. Mr. Millar said he acted for several building societies, and was paid by piecework or time. When buildings to be erected had to be approved by the vendors' surveyor, the costs of such approval were added to the price of the house. When the contract was silent as to that, he always charged the vendors. He never charged the purchaser for approving plans unless there was a specific clause to that effect in the contract.—Mr. Russell said: "You have heard the evidence given as to a custom that where the contract is silent the purchaser should pay the costs?—There is no such custom in our part of the country, but there is in the county of Reading. Mr. Eggington, surveyor, of Reading, gave similar evidence. After the close of the plaintiffs' evidence, Mr. Micklem gave up the point of custom at Reading, but submitted that

of this case, that there is no such general usage necessity of giving notice. If the defendant had left only one old roll on the roof he would have come within the exemption.—The Magistrate observed that he did not suppose there was any Act of Parliament that was so complicated and as difficult to decide upon as the Building Act, and the real truth was that each case had to be decided on its own merits. Reviewing the contentions advanced on either side, the Worship observed that he considered that the argument for the defence—viz., that you could not repair a zinc roof except by renewing it—was a sound one, because in some cases renewal was a good deal more than repairing. The matter was a little one to decide; but what occurred to him was that the main structure of the roof remained, and he therefore held that this work amounted to nothing more than the repairing of an old roof. He therefore dismissed the summons.

Our Office Table.

At Tuesday's meeting of the London County Council, the Highways Committee reported that they have, with the improvements Committee, decided to submit again to the Council proposals to seek Parliamentary authority in respect of the construction of tramways from Southwark-street over the new St. Paul's Bridge to terminate underground at a point near Chespide. The Committee have asked to be furnished with information as to the probable financial results of such tramways, and they have expressed the opinion that the present proposal should not be submitted to the Council until the question of the apportionment of the proposed contribution of £350,000 towards the widening of St. Paul's churchyard as between the tramways and the account of the improvement shall have been considered. The Highways Committee state that it is quite impossible at present to form any estimate of what the financial results of the scheme would be. It is proposed to direct the Special Committee on the Allocation of the Cost of Street Improvements to consider whether an apportionment as between tramways and improvements accounts shall be made, and if so, in what proportion.

An exhibition of paintings by Walter Howard Devereil will be opened on Monday next in Room XVIII. at the Tate Gallery, and will be on view for two or three months. This young artist, who was a close friend of Rossetti, was born in Virginia, U.S.A., in 1827, and died in 1884, before his early promise could be realised. His works are few in number, several having been destroyed, and few others were left unfinished at his death. His largest picture, the song scene from "Twelfth Night," in which Miss Siddall posed for Viola, and so became known to D. G. Rossetti, is being lent by Mrs. Steele Roberts, and Mr. J. R. Holliday. Sir Sigismund Neumann, and Mr. Wykeham Devereil, the surviving brother of the artist, are lenders of others. The trustees recently purchased Devereil's "Lady Feeding a Bird," originally called "The Pet," which was a time in Sir Edward Burne-Jones's collection, from Mrs. Mackail. The portrait by Hunt of Devereil, who was the model for Claudio in Holman Hunt's "Claudio and Isabella," is at present on loan at the Tate Gallery in the Birmingham collection.

Several pre-Raphaelite pictures are also at the Tate Gallery. They include three small landscapes by Madox Brown; Rossetti's "Regina Cordium," and other pictures by Madox Brown, Lewis, and Martineau; some drawings by Simon Solomon; several paintings by Burne-Jones, including the early "Siddonia," and "Clara von Bork"; and Dyce's "Portrait of a Child." The trustees recently purchased two water-colours by Rossetti, "Mary Nazareth," and "Mary Magdalene," through the Lewis Fund. These are now exhibited in Room III., where is also placed Mr. G. A. Storey's "My Mother," painted in 1874, and presented to the Tate Gallery by the National Art Collections Fund.

In the old Norman church in the village of Heyshott, Sussex, the marriage was cele-

brated of Mr. Richard Cobden-Sanderson, son of Mr. and Mrs. Cobden-Sanderson, and only grandson of Richard Cobden, with Miss Dorothea Dircks, daughter of Mr. and Mrs. Rudolf Dircks. Mr. Dircks is well known to all architects as the eminent and courteous librarian of the Royal Institute of British Architects. Heyshott Church is closely associated with the Cobden family, for in it the generations of Cobdens have been christened. From its old flint font Richard Cobden was baptised, and marking the pew in which he sat is a copper plaque inscribed with these words: "In this place Richard Cobden, who loved his fellow men, was accustomed to worship God." And this wedding adds to the village of Heyshott yet one more Cobden association.

The council of the Royal English Arboricultural Society, who have had under consideration the question of death duties upon timber, state that there is no settled policy at the Inland Revenue Department in dealing with the question, and that the Board refuse to lay down any rules. As far as they can ascertain, such Estate Duty valuations as have been settled have been compromised without regard to any specific basis of calculation. It is a matter of great importance to all landowners, that the state, that a basis should be settled. Estate Duty is not payable on timber only when it is realised, and yet the value of the timber has to be included in the aggregate valuation for the purpose of defining the rate of Estate Duty. There is consequently a great danger in many cases that the timber, or part of it, will be included in the value of an estate by reason of the inclusion of the real value for the purpose of ornament, sporting, or shelter, and duty will be paid on it without question. The council have found it very difficult to hear of authentic cases of the settlement of Estate Duty valuations where the timber has been fully considered, and they will be very glad if anyone who has settled the point, or who now has it under consideration, would communicate with them at Haydon Bridge, Northumberland.

The theory that Central America was originally colonised by a people from the East, probably from Egypt, is said to have just received support from the discovery by Professor Wiven, of New York, of a city buried under volcanic ashes in the valley of Teococo, in Mexico. Furniture and statues, vases and ornaments, are there complete and almost undamaged. There is a temple with wall paintings comparatively fresh, all a few feet below the surface. Many of the articles are of a distinctly Egyptian cast, but others are strongly indicative of Indian origin.

It was stated at the Norwich Consistory Court last Saturday that a pew had been removed from the parish of Great Witleingham, Norfolk, and sold for 12s. 6d., to a builder, and had since been used as pigsties and chicken-houses. The Rev. Percy Gethen, who applied for a faculty to remove more of the pews, said they were not part of the original furniture, and were a disfigurement of a fine old church. He had obtained the consent of the occupiers of the pews to their removal. The chancellor deprecated removing the pews without a faculty having been granted, and ordered the applicant to ascertain where they were in case it might be considered necessary to restore them to the church.

At a social meeting of the members of the Midland Arts Club held last Tuesday night at Birmingham, Mr. R. Catterson Smith delivered a lecture, illustrated with lantern slides, on "A Neglected Element in the Training of Artists." He spoke in favour of the cultivation of the power of making pictures in the mind, or visualisation, remarking that it would be helpful to the art students who would be associated with the artistic trades of the city. He considered the power of being able to see things clearly in the mind safer than they were coming in the paper or iron material was one of the most valuable means of designing, because of the great possibilities of development in individuality. He made a great distinction be-

tween what was called memory drawing and visualisation, observing that an object might be drawn from memory knowledge, but the visualisation was a distinctly higher plane of mental activity.

According to a recent patent by H. W. Hemingway, Marshgate - lane, Stratford, natural or artificial stone is hardened by treatment with arsenious acid and a soluble silicate, the proportions of the treating liquids being such that insoluble arsenates are formed, and silica is deposited in the pores of the stone. The stone is treated with the two solutions successively, the order being immaterial. Chalk efflorescence and railway cuttings may be treated in this manner. A composition for filling holes, cracks, or the like is also described, consisting of an acid mixture of, say, 9 parts of finely-divided silica and 12 parts of arsenic acid of specific gravity 1.4, and a basic mixture of 10 parts of alkaline silicate, and 6 parts of caustic lime, magnesia, or barium. The mixtures are made into a paste or are applied in successive layers.

The forty-second ordinary general meeting of shareholders of the Val de Travers Asphaltic Paving Company, Limited, will be held at 18, Hamilton House, 155, Bishopsgate, London, E.C., on Wednesday, April 3, 1912, at 12.30 o'clock p.m. After making the following appropriations: Depreciation and cost of maintaining plant and machinery, £2,411 0s. 3d.; written off cost of mining property, £1,000; written off cost of Noucat Concession, £882 7s. 1d.; written off cost of buildings, London, £164 12s. 7d.; depreciation in value of horses and harness, £64 10s. 6d.; the net profits of the year are £26,414 10s. 2d., which, with the sum brought forward, £929 3s. 4d., amounts to £26,943 13s. 6d. From this has to be deducted the interest on the debenture stock, amounting to £6,900. An interim dividend of 6d. per share was paid in October last. A further dividend of 1s. per share, free of income-tax, is now recommended, making together 1s. 6d. per share, or 7½ per cent. for the year. One of the Compagnie Generale Fund the Board have placed to the credit of profit and loss £2,430, and recommended a bonus of 3d. per share in addition to the dividend proposed to be paid, the balance carried forward being £2,893 13s. 6d. The dividend and bonus will be payable on April II. The directors report that, since the accounts were prepared, certain pending negotiations for dealing with one of their French Concessions have been completed, and an agreement has been entered into which provides for the immediate working of the concession, and for the delivery of rock or payment to the company of cash to the value of £10,000 over a period of years.

A useful little half-crown manual entitled "The Technique of Painting," by George M. Batus, Professor of the School of Art, Glasgow, is published by James Maclehoise and Sons, Glasgow. Mr. Fred H. Newbery, the Director of the School, contributes an introduction. Books on colours, tools, materials, and mediums, and other properties of painting, are numerous, but actually practising artists are rare. We do not know a good one, but this is reliable, and art students and draughtsmen will do well to get it.

A Local Government Board inquiry has been held at Wakefield relative to the application of the corporation for permission to borrow £5,950 for street improvements. It is proposed to pull down shop work at the top of Kirkgate to widen the approach to Warregate.

Mr. William Shillabeer Stevenson, an old and much respected resident of Newton Ferrers, passed away on Monday. The deceased at one time had an extensive business as builder and contractor, and was well known in the Town and neighbourhood. He was 72 years old.

There is on view at the London depot of the Duchess of Sutherland's Cripples' Guild, Ltd., 14, New Bond-street, W., a collection of ecclesiastical metalwork executed by crippled labour—some of it from old models and some from designs by architects, including Mr. Temple Moore, F.S.A.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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"SUFFERING FOOLS GLADLY."

Willingly or unwillingly, this is what most architects have to do, but most of those who can do it willingly reap many advantages. They are less liable to offend their unwise clients, which in itself counts for something, because the more ignorant those clients are, the coarser will be the kinds of revenge they will be likely to fix on. The low-class Englishman commonly selects a mode which will practically fine his artistic agent a considerable sum in money, for that is a material in which the vulgar man commonly abounds, and of which the artist, being ill-paid, is often rather short. The one who is not may be fairly suspected of being, and often proves to be, no genuine artist, though he may be, morally, a very good man. The names of "popular" artists now no more will occur to some of our readers in this connection, and perhaps of some others who had "something in them" which did not freely lend itself to the sordid ambitions of the middle, and more especially of the manufacturing, classes, who worship the god of this world as an epigrammatic Apostle once dared to call money. The apostles who follow him in this are few, and mostly apostles made by men.

Fools are of many sorts, from those who know nothing, to those who know much. The most unpopular sort are those who, some time after their death, turn out to have been no fools, or not such fools as people fancied them. Men were once looked on as fools who had a notion that streets and squares, and churches and theatres, not to mention halls and houses, could be lighted by gas; which its opponents, a hundred years ago, called "smoke." Nobody laughs at "smoke-lighting" now; it has gained the day too nearly. They used to laugh at running trains by boiling water; they don't laugh now. What they laugh at now are the safeguards which are long since devised against accidents; the proposal, for instance, that no train should go faster than eight miles an hour. They were well-meaning, though not far-seeing persons, who devised these needless and unworkable precautions. Things not much wiser have been recommended lately or air-ships, for submarines, and the like. We might as well recognise that the world is full of fools, many of whom have not acquired their title, nor will, probably, in this world; while many others, who deserve an opposite name, are just as far from getting it. Some day, all of them who are not forgotten, will have the rank they merit; but may Fate deliver us all from it who don't deserve it!

Perhaps the hardest sort of fools to be

suffered gladly are the hybrid ones; with one strain of folly in their nature derived, say, from Lord Beaconsfield, another from Mr. Cobden, a third from Palmerston, and a fourth from some honest preacher of what are now "the middle ages"; one line of descent traceable through a mother, who blessed them when very young; another from a father who thrashed them partly into his own way of thinking before they were six or eight years old; and the others from sundry opposing influences long before they were 20 years of age. All these doctrines may be utterly inconsistent with each other; but the man they have captured does not see their inconsistency, and believes he is fairly trying to realise them all. Should he have accepted any belief on scientific grounds, or even on pseudo-scientific ones, this belief and the rest will never be on quite equal terms while any of them are held. There are many kinds of fools, and we have referred to very few of them. Some are for doing nothing, and some are for doing what will be of no harm than good. Few are for what will be an unmixt benefit—a blessing with no curse joined to it. Generally you buy the benefits in one direction at the cost of sacrifices in another; or the advantage of to-day has to be paid for by a loss in a year's, or in ten or twenty years' time. M. Anatole France, in "La Pierre Blanche" an interesting book which begins with prehistoric times, and goes on through Greek and Roman days to the distant ones, to the remote future, tells us of what must have happened in prehistoric times in Greek and Roman times, touches on the days of St. Paul, and on what he thinks will happen hereafter. He sees the people always gaining power, but he always using it very wisely; and even he does not venture very far ahead in his race of prophecy. "Nothing," one of his characters says, "is absolutely evil, and nothing absolutely evil. The clay soil of which *amphora* could be made would mean a waste of time and labour were olive trees set to grow in it; for matter ceaselessly changes, and its perpetual change preserves life in the universe." To some such thoughts as these our great-grandfathers came back, and perhaps to some such ideas as succeeded them our children, or our grandchildren, will also return. "Nothing there to come, and Nothing past. But one eternal now does ever last." No doubt fools were, fools are, and fools will be, though it may take a better fool-scorer than ours to prove them all alike in kind.

Yet, alike or not alike, they have to be suffered, and, if possible, suffered gladly.

They have so many friends and relations that it does not answer to set up an unspoken quarrel with them. However they treat you, and whatever silly things they ask for, it is safest never to meet them with a downright "No." Put the evil day off till to-morrow, or if you can till next week, or next month, or next year. Next year perhaps the fool that worries most may be dead, and though there may be plenty of others, perhaps no other quite like him. If fools remain, the subject they are foiled on varies endlessly; the world would not last if it always remained the same. So try with all your might to sit your most troublesome fool out. You may die, and so may he, and in either case there is "silence for awhile," for even fools cannot be always thinking of what they did in the past, or always dreaming of what they mean to do in the future. Let them rest, and don't stir them up when they let you be. "Bide a wee," and "suffer them gladly."

ESTIMATING FOR REINFORCED-CONCRETE WORK.—VIII.

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SURFACE FINISHINGS FOR CONCRETE.

Concrete Walls.—The surfaces of concrete walls as left after removing the sheeting, generally present a patchy and somewhat unpleasant appearance, which is partly caused by the concrete being laid in detached quantities, and partly owing to the marks left by the sheeting. From an æsthetic point of view, it is, therefore, oftentimes considered desirable to adopt some arrangement for cleaning down and finishing the exposed concrete surfaces. A brief description of some of the methods employed is now given.

Cement Wash.—For ordinary purposes the wall surfaces may be brushed over with a thick cement wash, after stopping and pointing any holes or air-cracks which may be found when the sheeting has been removed.

Scrubbing.—In some cases the forms and sheeting are taken down before the concrete has had time to thoroughly harden. The surface is then brushed or scrubbed with hard wire-brushes, a light stream of water from a hose or can being at the same time directed on to the concrete face. By this means the superficial film of cement is removed from the concrete, and the uneven surface of the aggregate exposed, thus giving a pleasing rough texture to the concrete face, which gradually hardens on exposure to the weather. If desired, the external face of concrete walls may be finished with a thin

coat of superior concrete, from 1 in. to 2 in. in thickness, laid against the face of the sheeting, the remaining portion of the wall space being filled in with the ordinary concrete mixture, the whole being well rammed into position.

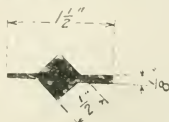


Fig. 1.

crete mixture, the whole being well rammed into position.

In localities where white or coloured marble waste, granite, red sandstone, etc., is available, such materials may be used as an aggregate for the superior description of facing concrete. When thoroughly scrubbed down with water and wire brushes so as to expose the component portions of the concrete aggregate, a rich appearance is given to the concrete work.

Rubbing Down. Concrete surfaces



Fig. 2.

which are set too hard to permit the effective use of wire brushes may be finished by washing with water and rubbing down with bricks of corundum, emery, or hard stone.

Bush-Hammering. The general appearance of concrete surfaces may be much improved by bush-hammering. A bush-hammer consists of a heavy steel hammer with a large face, having a series of projections thereon. The effect of bush-hammering is to remove the facing skin of cement, and give a robust roughened appearance to the concrete surface. For

to heavy wear, the surface is usually finished with a superior description of concrete for a depth of about 1 in. The superior concrete is composed of one part Portland cement to two parts of fine granite chippings, the face being afterwards well trowelled to a fair and even surface. If an indented, fluted, or rough-cast surface is required, the trowelled face of the concrete is finished with a small hand rolling tool, known as an "indenting," "spike," or "rough-cast," or "fluted," roller, according to the particular pattern used. In some cases the concrete is finished with a "border" roller, so as to provide an ornamental border about 6 in. wide around the paving.

SYSTEMS OF STEEL REINFORCEMENT FOR CONCRETE WORK.

Numerous methods of constructing or arranging the metal reinforcement for concrete structures have been devised, for each of which certain advantages are claimed. It would occupy too much space to give a detailed description of all the various systems now available, but we append a few particulars of the following, each good of their kind.

KAHN TRUSS BAR SYSTEM

(The Trussed Concrete Steel Co., Ltd., 82, Caxton House, Westminster, S.W.)

This form of reinforcement consists of patented and specially-rolled sections of steel bar of varying sizes. A section of the 1 1/2 in. by 1 in. Kahn bar is shown in Fig. 1. The diagonal projecting wings or ribs of the bars are machine-cut at intervals, and turned up so as to form stirrup-bars or shear members. The stirrup-bars are thus rigidly connected to the main tension-bars, as indicated in Fig. 2. The general arrangement of the

is required, the section of Kahn bar shown in Fig. 4 is used, viz.:

KAHN TRUSS BAR (HEAVY SECTION).

| Size of bar. | Weight per ft. run. | Sectional area. | Standard length of stirrups. |
|---------------|---------------------|-----------------|------------------------------|
| in. | lb. | in. | in. |
| 2 1/2 x 1 1/2 | 6.8 | 2.00 | 24 |

It has been found that the concrete in beams, etc., should be reinforced both in the vertical and in the horizontal planes, in order to withstand the shearing as well as the tensile stresses which may occur within the concrete. The patentees of the Kahn bar claim that by this system not only is the concrete reinforced in the vertical and horizontal planes, but at the same time the shear reinforcing members are rigidly connected to the horizontal reinforcement. The shear members are also so arranged that they are inclined at an angle of 45 deg., and thus practically cross the line of shear curvature at right angles.

Complete detail drawings of suitable reinforced-concrete construction are prepared by the patentees of the system for all works in which Kahn reinforcing-bars are used. The necessary size and dimensions of each reinforcing-bar required is carefully determined, and sent from the

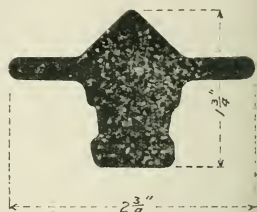


Fig. 4.

engineering works with the stirrups all ready cut and complete for fixing.

THE KAHN RIB-BAR.

In addition to the Kahn trussed bars with fixed stirrups or shear members, another form of steel bar having no long projecting wings or stirrups—known as the "Kahn rib-bar"—is also manufactured by this firm. It consists of a specially rolled section, having a series of raised fillets or ribs arranged transversely at short intervals along the length of the bar as indicated in Fig. 4a. By this arrangement a mechanical bond is formed between the steel and concrete, and a greater adhesion obtained between the two materials as compared with the ordinary plain sections of steel bar when embedded in concrete.

For soundproof floors of light construction, a system of hollow floor-tiles supported on a series of concrete beams reinforced with Kahn steel bars is adopted where this type of floor is required.

The Kahn reinforced system also provides a patent sheeting known as "Hy rib" (high rib) steel sheeting for use in the construction of partitions, roofs, floors, conduits, sewers, culverts, etc. It consists of rolled-steel sheets arranged with a series of perforated corrugations, and stiffened at intervals with high ribs, as indicated in Fig. 4b. The "Hy rib" sheeting may be obtained in different thicknesses or weights, according to local requirements. It is manufactured from No. 28, No. 26, and No. 24 U.S. standard-gauge steel sheets, and can be supplied either in

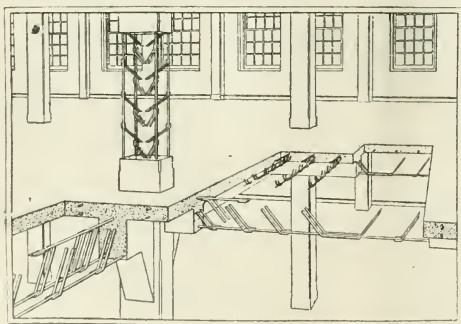


Fig. 3.

large works pneumatic bush-hammers are used.

Sand Blasting. A roughened surface with a fine and even finish may also be given to concrete by the use of a sand blast machine.

Concrete Pavings. For general purposes the concrete paving is floated to an even surface whilst being laid. A little additional cement is then dusted over the surface and the whole finished with a neatly-trowelled face. For pavings subject

Kahn bar system for columns, beams, floor slabs, etc., is shown in Fig. 3. The following sizes and weights of bars are manufactured, viz.:

WEIGHTS AND SIZES OF KAHN TRUSS BAR.

| Size of bar. | Weight per ft. run. | Sectional area. | Standard length of stirrups. |
|--------------|---------------------|-----------------|------------------------------|
| in. | lb. | in. | in. |
| 1 1/2 x 1 | 1.4 | .41 | 5 |
| 2 x 1 1/2 | 2.7 | .59 | 12 |
| 3 x 1 | 1.9 | 1.41 | 18 |

For beams, etc., where greater strength

straight sheets or bent to any desired curve.

INDENTED-BAR SYSTEM.

(The Indented Bar and Concrete Engineering Co., Ltd., Queen Anne's Chambers, Westminster, S.W.)

The metal reinforcement consists of square or round indented steel bars (see Figs. 5 and 6), which are embedded in the concrete. These bars are arranged to take the tensile stresses in concrete beams,

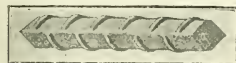


FIG. 4A.

floors, etc., whilst at the same time the indentations provide a mechanical bond between the steel and concrete, thus increasing the adhesive strength between the two materials. Round or square steel indented bars are ordinarily rolled in

floor system, whilst Figs. 8 and 9 show a plan and section of the "mitre" tile arrangement. The "bridge" tile hollow floor is designed for use with a "one-way" system of steel-bar reinforcement, and is suitable for small spans. The "mitre" tile hollow floor consists of a series of four wedge-shaped hollow floor-tiles which allow of a "two-way" system of reinforcement. In both cases the necessary steel-bar reinforcement is solidly embedded in the concrete between the



FIG. 6.

hollow tiles as indicated in the sketches.

The tiles are arranged with a lip or projection which forms the bottom of the concrete beam, so that the whole of the under surface of the floor is covered by the tiles (which are roughened to receive plaster).

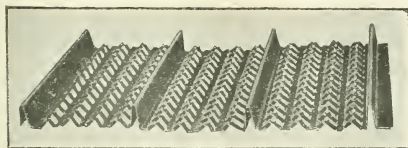


FIG. 4B.

lengths up to 40ft. or 50ft.; but, if required, some of the sections may be obtained in 70ft. or 80ft. lengths. The sectional area of each square indented bar is the same throughout its entire length, whilst the effective sectional area of a round indented bar is from $\frac{1}{2}$ to 2 per cent.



FIG. 5.

less than that of a smooth bar of the same weight. The standard sizes, weights, and sectional areas of indented steel bars are as follows:—

WEIGHT AND SECTIONAL AREA OF SQUARE INDENTED STEEL BARS.

| Size of bar. | Weight per ft. run. | Sectional area. |
|--------------|---------------------|-----------------|
| in. | lb. | sq. in. |
| 1 square | 24 | .06 |
| " | 38 | .11 |
| " | 45 | .15 |
| " | 1.33 | .30 |
| " | 1.91 | .56 |
| " | 2.60 | .77 |
| 1 | 3.40 | 1.00 |
| 1½ | 5.31 | 1.56 |

WEIGHT AND SECTIONAL AREA OF ROUND INDENTED STEEL BARS.

| Size of bar. | Weight per ft. run. | Sectional area. |
|--------------|---------------------|-----------------|
| in. | lb. | sq. in. |
| diam. | .38 | .11 |
| " | .47 | .19 |
| " | 1.05 | .39 |
| " | 1.52 | .41 |
| " | 2.06 | .60 |
| 1 | 2.60 | .78 |
| 1½ | 4.21 | 1.22 |
| 2 | 6.06 | 1.76 |

A combination of reinforced-concrete and fire-resisting hollow-floor construction (known as the "Dentile" floor system) has also been introduced by this firm for use with the indented-bar reinforcement. Fig. 7 is a sketch of the "bridge" tile arrangement of the Dentile

floor system, whilst Figs. 8 and 9 show a plan and section of the "mitre" tile arrangement. The "bridge" tile hollow floor is designed for use with a "one-way" system of steel-bar reinforcement, and is suitable for small spans. The "mitre" tile hollow floor consists of a series of four wedge-shaped hollow floor-tiles which allow of a "two-way" system of reinforcement. In both cases the necessary steel-bar reinforcement is solidly embedded in the concrete between the

hollow tiles as indicated in the sketches. The tiles are arranged with a lip or projection which forms the bottom of the concrete beam, so that the whole of the under surface of the floor is covered by the tiles (which are roughened to receive plaster).

THE "PIKETTY" SYSTEM.

(Messrs. Piketty and Co., 14, Bloomsbury-street, London, W.C.)

In this system the concrete beams and floors are reinforced with tension-rods of plain round steel bars of ordinary commercial sections. A series of steel stirrups are also arranged at intervals throughout the length of the tension-rods for the purpose of resisting the shearing stresses which occur within the concrete when supporting a weight or load. All steel bars above $\frac{1}{2}$ in. diameter have their ends fished or hooked, whilst bars less than $\frac{1}{2}$ in. diameter have their ends flattened or hooked.

For columns, struts, piles, etc., the longitudinal reinforcing-bars are fixed parallel to each other, and to the sides of the moulds. These bars are securely retained in position with suitable reinforcing-links, spaced at frequent intervals, in order to increase the compressive strength of the enclosed concrete.

Reinforced-concrete work in the Piketty system is executed by selected contractors, who submit tenders based on the design and quantities prepared on their behalf by Messrs. Piketty and Co. as concrete specialists. Immediately the tender is accepted, full working drawings and instructions are supplied by these specialists for the approval of the architect or engineer under whose general superintendence the whole of the work is carried out.

WEIGHT OF ROUND AND SQUARE STEEL BARS.

For purposes of general reference, the weights per foot run of the ordinary commercial sizes of round and square steel bars, as frequently used in reinforced concrete work, are here given:—

| Diameter or Side. | Weight of Round Bar per foot run. | Weight of Square Bar per foot run. |
|-------------------|-----------------------------------|------------------------------------|
| in. | lb. | lb. |
| $\frac{1}{8}$ | .001 | .119 |
| $\frac{1}{4}$ | .007 | .212 |
| $\frac{3}{8}$ | .021 | .333 |
| $\frac{1}{2}$ | .037 | .478 |
| $\frac{5}{8}$ | .067 | .651 |
| $\frac{3}{4}$ | .107 | .850 |
| $\frac{7}{8}$ | .143 | 1.076 |
| 1 | .182 | 1.328 |
| 1¼ | .282 | 1.698 |
| 1½ | .403 | 2.093 |
| 1¾ | 1.763 | 2.245 |
| 2 | 2.04 | 2.604 |
| 2¼ | 2.317 | 2.960 |
| 2½ | 2.670 | 3.400 |
| 2¾ | 3.014 | 3.858 |
| 3 | 3.370 | 4.303 |
| 3½ | 3.766 | 4.795 |
| 4 | 4.171 | 5.312 |
| 4½ | 4.600 | 5.857 |
| 5 | 5.099 | 6.428 |
| 5½ | 5.618 | 7.025 |
| 6 | 6.008 | 7.650 |
| 6½ | 6.520 | 8.301 |
| 7 | 7.031 | 8.974 |
| 7½ | 7.694 | 9.682 |
| 8 | 8.178 | 10.410 |
| 8½ | 8.713 | 11.159 |
| 9 | 9.288 | 11.950 |
| 9½ | 10.000 | 12.760 |
| 10 | 10.670 | 13.600 |
| 10½ | 11.350 | 14.470 |
| 11 | 12.050 | 15.380 |
| 11½ | 12.780 | 16.320 |
| 12 | 13.520 | 17.290 |
| 12½ | 14.290 | 18.290 |
| 13 | 15.080 | 19.310 |
| 13½ | 15.890 | 20.350 |
| 14 | 16.690 | 21.420 |
| 14½ | 17.500 | 22.510 |
| 15 | 18.310 | 23.620 |
| 15½ | 19.100 | 24.750 |
| 16 | 19.900 | 25.900 |
| 16½ | 20.700 | 27.070 |
| 17 | 21.500 | 28.260 |
| 17½ | 22.300 | 29.470 |
| 18 | 23.100 | 30.690 |

SECTIONAL AREAS OF ROUND AND SQUARE STEEL BARS.

The sectional areas of plain steel reinforcing rods and bars may be readily ascertained from the following table, viz.:—

| Diameter or Side. | Area of Cross-section of Round Bar. | Area of Cross-section of Square Bar. |
|-------------------|-------------------------------------|--------------------------------------|
| in. | sq. in. | sq. in. |
| $\frac{1}{8}$ | .003 | .003 |
| $\frac{1}{4}$ | .009 | .009 |
| $\frac{3}{8}$ | .017 | .017 |
| $\frac{1}{2}$ | .031 | .031 |
| $\frac{5}{8}$ | .049 | .049 |
| $\frac{3}{4}$ | .070 | .070 |
| $\frac{7}{8}$ | .096 | .096 |
| 1 | .110 | .110 |
| 1¼ | .140 | .140 |
| 1½ | .196 | .196 |
| 1¾ | .230 | .230 |
| 2 | .261 | .261 |
| 2¼ | .301 | .301 |
| 2½ | .371 | .371 |
| 2¾ | .442 | .442 |
| 3 | .509 | .509 |
| 3½ | .631 | .631 |
| 4 | .691 | .691 |
| 4½ | .768 | .768 |
| 5 | .844 | .844 |
| 5½ | .924 | .924 |
| 6 | 1.007 | 1.007 |
| 6½ | 1.091 | 1.091 |
| 7 | 1.227 | 1.227 |
| 7½ | 1.361 | 1.361 |
| 8 | 1.491 | 1.491 |
| 8½ | 1.627 | 1.627 |
| 9 | 1.761 | 1.761 |
| 9½ | 1.901 | 1.901 |
| 10 | 2.041 | 2.041 |
| 10½ | 2.181 | 2.181 |
| 11 | 2.317 | 2.317 |
| 11½ | 2.461 | 2.461 |
| 12 | 2.601 | 2.601 |
| 12½ | 2.741 | 2.741 |
| 13 | 2.881 | 2.881 |
| 13½ | 3.021 | 3.021 |
| 14 | 3.161 | 3.161 |
| 14½ | 3.301 | 3.301 |
| 15 | 3.441 | 3.441 |
| 15½ | 3.581 | 3.581 |
| 16 | 3.721 | 3.721 |
| 16½ | 3.861 | 3.861 |
| 17 | 3.991 | 3.991 |
| 17½ | 4.131 | 4.131 |
| 18 | 4.271 | 4.271 |
| 18½ | 4.411 | 4.411 |
| 19 | 4.551 | 4.551 |
| 19½ | 4.691 | 4.691 |
| 20 | 4.831 | 4.831 |
| 20½ | 4.971 | 4.971 |
| 21 | 5.111 | 5.111 |
| 21½ | 5.251 | 5.251 |
| 22 | 5.391 | 5.391 |
| 22½ | 5.531 | 5.531 |
| 23 | 5.671 | 5.671 |
| 23½ | 5.811 | 5.811 |
| 24 | 5.951 | 5.951 |
| 24½ | 6.091 | 6.091 |
| 25 | 6.231 | 6.231 |
| 25½ | 6.371 | 6.371 |
| 26 | 6.511 | 6.511 |
| 26½ | 6.651 | 6.651 |
| 27 | 6.791 | 6.791 |
| 27½ | 6.931 | 6.931 |
| 28 | 7.071 | 7.071 |
| 28½ | 7.211 | 7.211 |
| 29 | 7.351 | 7.351 |
| 29½ | 7.491 | 7.491 |
| 30 | 7.631 | 7.631 |
| 30½ | 7.771 | 7.771 |
| 31 | 7.911 | 7.911 |
| 31½ | 8.051 | 8.051 |
| 32 | 8.191 | 8.191 |
| 32½ | 8.331 | 8.331 |
| 33 | 8.471 | 8.471 |
| 33½ | 8.611 | 8.611 |
| 34 | 8.751 | 8.751 |
| 34½ | 8.891 | 8.891 |
| 35 | 9.031 | 9.031 |
| 35½ | 9.171 | 9.171 |
| 36 | 9.311 | 9.311 |
| 36½ | 9.451 | 9.451 |
| 37 | 9.591 | 9.591 |
| 37½ | 9.731 | 9.731 |
| 38 | 9.871 | 9.871 |
| 38½ | 10.011 | 10.011 |
| 39 | 10.151 | 10.151 |
| 39½ | 10.291 | 10.291 |
| 40 | 10.431 | 10.431 |
| 40½ | 10.571 | 10.571 |
| 41 | 10.711 | 10.711 |
| 41½ | 10.851 | 10.851 |
| 42 | 10.991 | 10.991 |
| 42½ | 11.131 | 11.131 |
| 43 | 11.271 | 11.271 |
| 43½ | 11.411 | 11.411 |
| 44 | 11.551 | 11.551 |
| 44½ | 11.691 | 11.691 |
| 45 | 11.831 | 11.831 |
| 45½ | 11.971 | 11.971 |
| 46 | 12.111 | 12.111 |
| 46½ | 12.251 | 12.251 |
| 47 | 12.391 | 12.391 |
| 47½ | 12.531 | 12.531 |
| 48 | 12.671 | 12.671 |
| 48½ | 12.811 | 12.811 |
| 49 | 12.951 | 12.951 |
| 49½ | 13.091 | 13.091 |
| 50 | 13.231 | 13.231 |
| 50½ | 13.371 | 13.371 |
| 51 | 13.511 | 13.511 |
| 51½ | 13.651 | 13.651 |
| 52 | 13.791 | 13.791 |
| 52½ | 13.931 | 13.931 |
| 53 | 14.071 | 14.071 |
| 53½ | 14.211 | 14.211 |
| 54 | 14.351 | 14.351 |
| 54½ | 14.491 | 14.491 |
| 55 | 14.631 | 14.631 |
| 55½ | 14.771 | 14.771 |
| 56 | 14.911 | 14.911 |
| 56½ | 15.051 | 15.051 |
| 57 | 15.191 | 15.191 |
| 57½ | 15.331 | 15.331 |
| 58 | 15.471 | 15.471 |
| 58½ | 15.611 | 15.611 |
| 59 | 15.751 | 15.751 |
| 59½ | 15.891 | 15.891 |
| 60 | 16.031 | 16.031 |
| 60½ | 16.171 | 16.171 |
| 61 | 16.311 | 16.311 |
| 61½ | 16.451 | 16.451 |
| 62 | 16.591 | 16.591 |
| 62½ | 16.731 | 16.731 |
| 63 | 16.871 | 16.871 |
| 63½ | 17.011 | 17.011 |
| 64 | 17.151 | 17.151 |
| 64½ | 17.291 | 17.291 |
| 65 | 17.431 | 17.431 |
| 65½ | 17.571 | 17.571 |
| 66 | 17.711 | 17.711 |
| 66½ | 17.851 | 17.851 |
| 67 | 17.991 | 17.991 |
| 67½ | 18.131 | 18.131 |
| 68 | 18.271 | 18.271 |
| 68½ | 18.411 | 18.411 |
| 69 | 18.551 | 18.551 |
| 69½ | 18.691 | 18.691 |
| 70 | 18.831 | 18.831 |
| 70½ | 18.971 | 18.971 |
| 71 | 19.111 | 19.111 |
| 71½ | 19.251 | 19.251 |
| 72 | 19.391 | 19.391 |
| 72½ | 19.531 | 19.531 |
| 73 | 19.671 | 19.671 |
| 73½ | 19.811 | 19.811 |
| 74 | 19.951 | 19.951 |
| 74½ | 20.091 | 20.091 |
| 75 | 20.231 | 20.231 |
| 75½ | 20.371 | 20.371 |
| 76 | 20.511 | 20.511 |
| 76½ | 20.651 | 20.651 |
| 77 | 20.791 | 20.791 |
| 77½ | 20.931 | 20.931 |
| 78 | 21.071 | 21.071 |
| 78½ | 21.211 | 21.211 |
| 79 | 21.351 | 21.351 |
| 79½ | 21.491 | 21.491 |
| 80 | 21.631 | 21.631 |
| 80½ | 21.771 | 21.771 |
| 81 | 21.911 | 21.911 |
| 81½ | 22.051 | 22.051 |
| 82 | 22.191 | 22.191 |
| 82½ | 22.331 | 22.331 |
| 83 | 22.471 | 22.471 |
| 83½ | 22.611 | 22.611 |
| 84 | 22.751 | 22.751 |
| 84½ | 22.891 | 22.891 |
| 85 | 23.031 | 23.031 |
| 85½ | 23.171 | 23.171 |
| 86 | 23.311 | 23.311 |
| 86½ | 23.451 | 23.451 |
| 87 | 23.591 | 23.591 |
| 87½ | 23.731 | 23.731 |
| 88 | 23.871 | 23.871 |
| 88½ | 24.011 | 24.011 |
| 89 | 24.151 | 24.151 |
| 89½ | 24.291 | 24.291 |
| 90 | 24.431 | 24.431 |
| 90½ | 24.571 | 24.571 |
| 91 | 24.711 | 24.711 |
| 91½ | 24.851 | 24.851 |
| 92 | 24.991 | 24.991 |
| 92½ | 25.131 | 25.131 |
| 93 | 25.271 | 25.271 |
| 93½ | 25.411 | 25.411 |
| 94 | 25.551 | 25.551 |
| 94½ | 25.691 | 25.691 |
| 95 | 25.831 | 25.831 |
| 95½ | 25.971 | 25.971 |
| 96 | 26.111 | 26.111 |
| 96½ | 26.251 | 26.251 |
| 97 | 26.391 | 26.391 |
| 97½ | 26.531 | 26.531 |
| 98 | 26.671 | 26.671 |
| 98½ | 26.811 | 26.811 |
| 99 | 26.951 | 26.951 |
| 99½ | 27.091 | 27.091 |
| 100 | 27.231 | 27.231 |
| 100½ | 27.371 | 27.371 |
| 101 | 27.511 | 27.511 |
| 101½ | 27.651 | 27.651 |
| 102 | 27.791 | 27.791 |
| 102½ | 27.931 | 27.931 |
| 103 | 28.071 | 28.071 |
| 103½ | 28.211 | 28.211 |
| 104 | 28.351 | 28.351 |
| 104½ | 28.491 | 28.491 |
| 105 | 28.631 | 28. |

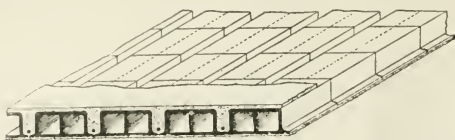


FIG. 7.

The Donnett concrete can be laid horizontally up to widths of 4ft. or more with perfect safety without intermediate support; but the arched form is recommended whenever suitable depth can be allowed for the floor construction, as great rigidity and economy of iron are obtained in the girders secured. The supporting girders are of steel. For ordinary spans up to from 25ft. to 20ft. rolled steel joists are used. Over these spans riveted girders may be desirable. All who have used the system know that it is lighter and less costly than brickwork, equivalent strength being required.

A few years after the system was introduced a serious demand made itself felt for the protection of a destructive firework, and no wonder! We do not cur-

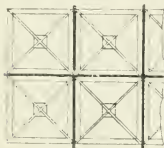


FIG. 8.

re remember anything that measured out so minutely more than the series of experiments which Messrs. Donnett and their assistants took for the enactment of columns, columns, and girders in their system. The result was that their



FIG. 9.

methods became so largely adopted, and soon rigidly specified by public authorities controlling construction. Among the many severe tests by fire to which their system has been subjected, recorded in our own back volumes, we need only remind readers of the fires at the Civil Service Co-operative Stores in the Haymarket in 1881 and 1903, at the Criterion Restaurant, Broad Street House, E.C., Dent in Hall, Lancashire, and the Merchant Venturers' Technical College, Bristol, this complete localisation of the fire being most effectively secured in every instance, as we venture to predict it will be whenever and whenever similar disaster threatens any one of the long list of buildings where the system has been adopted.

The Donnett concrete varies in cost according to the span, and also the load to be carried. For floors calculated to carry a working load of 15wt. per foot square, the price would vary from £3 10s. to £10 per square. The price of £3 10s. per square is for the concrete work alone, direct on to the wall, without any steel joists supporting it. With steel joists

are required, the cost would vary from £5 10s. to £10, according to the span and the number of fittings for connections required. The price of £10 is for a large span necessitating compound girders.

ARCHIBALD D. DAWSON AND SONS, LTD.,

39, Victoria-street, Westminster; Steel-works-road, S.W.; East Moors, Cardiff, and 65, Quay Side, Newcastle-on-Tyne, are specialists for a system of fireproof flooring, consisting of ferro-cement concrete fill in upon flat centering, and enclosing 3in. steel joists 16in. apart, bearing on the lower flanges of 6in. joists in 7ft. bays of 16ft. span, or instead of 3in. joists, various sections of reinforcement bars according to the spans and loads to be carried, which has decided advantages. The cost in London for a 2ft. bearing, including joists, is about 7s. net per yard super, for a safe load of 2wt. per square foot. They are also patentees of a solid-girder tile floor laid between steel joists which are placed at 2ft. and 2ft. 3in. centres. This system avoids the use of centering, and enables the ceilings to be plastered a few days after completion. The total depth occupied is 6in. Prices, from 8s. net per square yard laid in London and varying according to the span and load to be carried.

STUART'S GRANOLITHIC CO., LTD.,

4, Fenchurch-street, E.C., are the makers of the patent granolithic fire-resisting floors bearing the company's name. It has special advantages, such as a maximum of head space and spans of, say, 50ft. and 3in. at crown, with no joists whatever. For ordinary flat floors, 10ft. span,

ten to fifteen times as expensive. The efficiency of timber, as a reinforcing material, depends on whether there is sufficient adhesion between the timber and the concrete, and whether the difficulties of the absorption of moisture by the timber from the wet concrete, and the splitting the latter, can be overcome.

The paper describes the experiments made by the author to ascertain (a) the amount of water absorbed by eighteen kinds of timber immersed in fresh water, along the grain and through the end grain respectively; (b) the relative absorption by the timber of fresh and sea water in the same period; (c) the relative amount of water absorbed by timber embedded in 6 to 1 concrete and neat cement blocks; (d) the effect of applying wood preservative, creosote, varnish, etc., to the timber before insertion in the concrete or cement blocks; (e) the effect on the adhesion between the timber and the concrete of soaking the rods before insertion. Examples are given to show that concrete effectively preserves timber embedded in it.

Particulars are given of the construction of twenty-five concrete beams, reinforced by timber rods. Three ligno-concrete beams, 8in. deep by 4in. wide, were tested with a central load on a 4ft. span; the average ultimate load producing fracture about three tons. The results of these tests are compared with the tests on ferro-concrete beams recorded by Mr. F. Marburg in the Proceedings of the American Society for Testing Materials (1904, vol. iv.). It appears that for the same ultimate strength of beam it is necessary to use 9 per cent. of sectional area of pitch-pine tensile reinforcements as against 1 per cent. steel reinforcements. A comparison of the prices of steel and pitch-pine show a saving in favor of ligno-concrete.

As the author points out, in cases where more than about 1.2 per cent. of steel reinforcement is required, ligno-concrete cannot compete with ferro-concrete, because the required size of the timber bars would be too large for convenient use. There appears, however, to be a big field for it for use in constructing bungalows, buildings for small holdings, floors, piles, posts, fencing, coast and river works, etc. It has already been used for making fence posts and for building a short length of sea wall. The ligno-concrete fence-posts cost about two shillings per cubic foot. They are about 20 per cent. cheaper than creosoted deal, and about 40 per cent. cheaper than English oak. In Canada, four bungalows have been built with ligno-concrete slabs, and the Pacific Coast Construction Company, of Victoria, British Columbia, now have contracts in hand for twenty buildings in which this material is to be used.

LORD CALTHORPE'S LODGE AT WOODLAND.

This lodge and gateway has been erected for the Right Honourable Lord Calthorpe, as a main entrance to his late of Woodland, at Woodland Vale, near Ryde. The accommodation provides a living room, commanding the approach, parlour, scullery and roomy offices, and three bedrooms on the first floor. The materials are best sand-faced red bricks for exterior brickwork; the roof-covering is of sand faced purple-brown tiles. The part over gateway is roughcast; the gates are of wrought iron; and the gateway is paved with wood blocks in order to deaden sound. The gables are half-timbered and have carved bargeboards and gable sills. The cost, including garden walls and fencing, was £1,000; the builder being Mr. E. James, Binsted, Ryde, and the architect Mr. Stephen Salter, F.R.I.B.A., "Pondwell," near Seaview, I.W., and Oxford.

THE END.

LIGNO-CONCRETE.

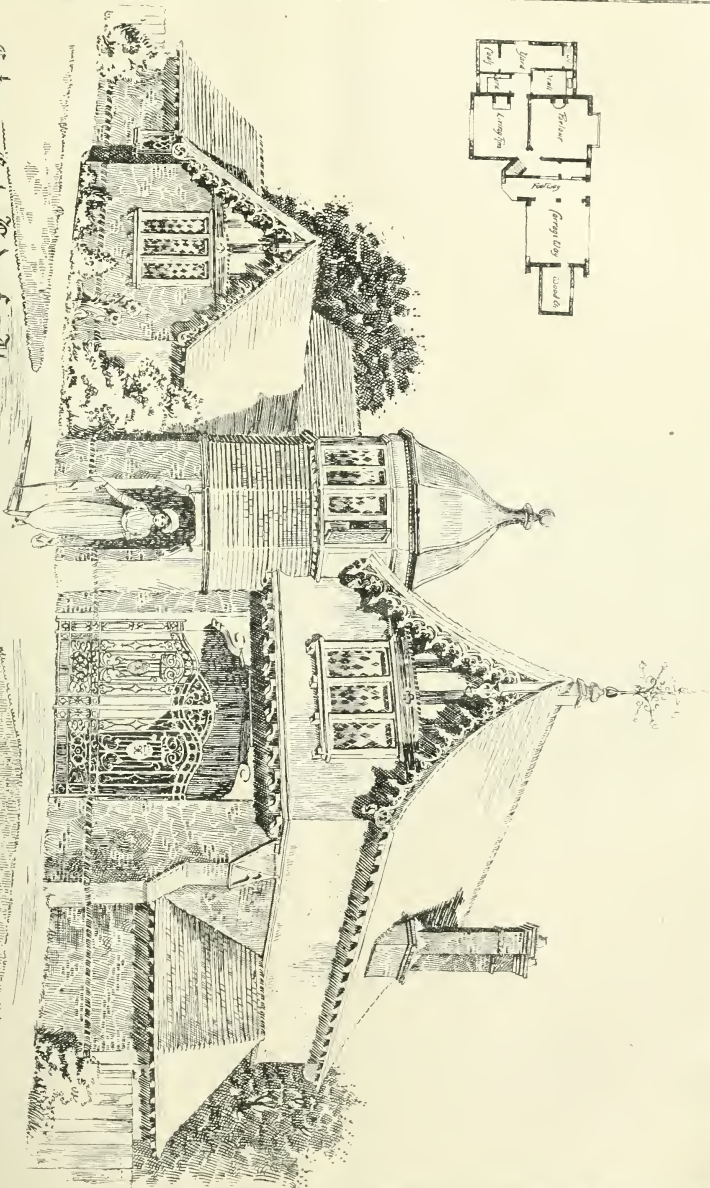
By GERALD O. CASE.

The following is an abstract of a paper read on Monday, April 1, 1912, at the Institution of Electrical Engineers, before the Society of Engineers:—

In the introductory remarks the author refers to the use in America and Australasia of concrete in combination with timber, and points out that while the concrete effectively preserves the timber, it is not used to the greatest advantage. The object of the author's investigations was to ascertain if it were possible to reinforce concrete with timber rods. Roughly speaking, steel is about eight or nine times stronger than timber, but

Sir Alexander Macdonald, of the Isles, last week, unveiled the memorial fountain which has been erected in that town by public subscription to the memory of the late Almeric Scaudon, ex-Mayor of Bridlington at the junction of High-street and St. John-street in the Old Town, where the late Almeric resided. It is of white Cilician marble, and is surmounted with a life-size bust of the deceased gentleman.

Entrance Gate Lodge for the Right Hon^{ble} Lord Clithorpe



SEPTIMUS S. H. C. 1912

ST. MARTIN'S PRIORY, DOVER.

The March issue of the *Home Counties Magazine* (G. Bell and Sons, Ltd., 1s. 6d.) is particularly interesting one. There are articles on Long Ditton, the Hippodrome, that forgotten London racecourse, formerly located at Notting Hill; the First Home of the old East India Company; the Origin of Markets and Fairs; the Haymarket, London; Some Early Churches of South Essex; and St. Martin's Priory, Dover.

The last is by Mr. J. Tavenor-Perry, in continuation of a former paper in Vol. XIII., whose sketch of the well-known Gatehouse we are permitted to reproduce, with extracts from his description of the Priory.

The church has essentially in all its chief characteristics the Austin Canon and not the Benedictine arrangement; and the nave is wide and spacious, suitable for the large congregations who were expected to listen to the Augustinians. Its dimensions, from the west front to the crossing of the transepts, and from the south to the north walls inclusive of the aisles, were about 145ft. by 65ft., or nearly 9,500sq. ft. for the nave alone, and it was formed into nine bays. The piers of the nave arcades were square, with nook-shafts of Bethesden marble, some of which have been found amongst the ruins; and as these piers were comparatively slight, being only five feet square, and as there were no buttresses capable of withstanding any thrust, the roofs must have been of wood. The west front was not prepared for towers, as it would have been with a Benedictine church, and the piers at the crossing, which had a clear internal space of 30ft., were not sufficiently strong to carry any lofty tower at that point. The transepts were aisleless, and stretched 160ft. from north to south, and each had on its eastern side two semicircular apsidal chapels, 12ft. wide and deep. The square-ended choir and sacristy had together a length from the crossing of 95ft., and the same width as the nave; the nave aisles were continued for three bays along the sides of the choir, with circular piers to the arcade, and apsidal terminations. Traces of a single doorway in these orders were found at the west end, and another in the third bay of the south aisle which, no doubt, was the entrance used by the townspeople, and its door may have borne the usual sanctuary ring to mark the church as the successor to or the sharer in the benefits and protection of St. Martin's cloak.

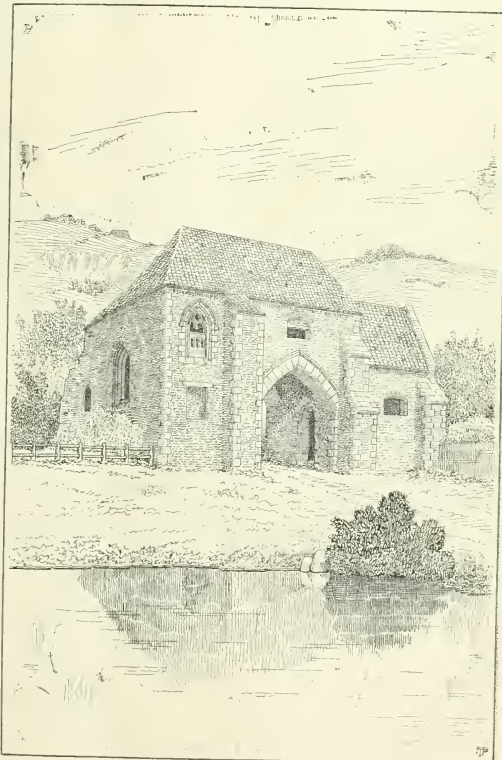
Of the aspect of the church in its primitive beauty, internal or external, it is difficult now to form a conception, since, although enough remained in the last century to make it possible to take an accurate plan, scarcely one stone remained above another; and now, all that was left then has either been destroyed or buried under the modern houses. For its size it might have been comparable with Rochester, Southwell, or Tewkesbury, and, as far as we can judge from existing remains, must have equalled them in architectural decoration.

The conventual buildings at Dover were placed on the north side, which, though not the customary position, was by no means rare, and was, by peculiarities of the site, sometimes made necessary. In this particular case the church, having been designed with special reference to popular preaching, it was set on the townward side of the site, and the buildings for the canons' use on the further side; in this the example of Canterbury was followed, where the church was placed nearest to the city and the conventual buildings between it and the city wall. Thus we get the chapter-house at the end of the north transept, without any intervening splay, and of the same form, as, though rather smaller than, the beautiful conical porphyry one, built by Galfid Rufus at Durham, which the Dean, Lord Cornwallis, having found it chilly, ordered to be pulled down in 1793. Beyond the chapter house, and stretching still northward, was a range of buildings, measuring over all 40ft. in width by 145ft. in length. This is generally assumed to have been used by the monks as their dormitory, with perhaps an undercroft for various domestic offices; but it had no access to the church, such as was usually pro-

vided for the convenience of attending early services, unless the roof of the chapter house was made so low that a gallery to the transept passed over it.

To the north of the nave and to the west of the last-mentioned buildings was the cloister, the outlines of which are still apparent, and which measured about 110ft. square, including the walks. How far the building of the original cloister had been carried before the French attacks we do not know; but in the considerable ruins of the west walk, till recently remaining, were found fragments of 13th-century vaulting ribs, which may have formed portions of the groining on that side. Towards the end of the 15th century it had

this arcade irregularly pierced with simple round-arched windows, two being arranged together at the east end, those on the south side having their sills raised to a higher level, so as to clear the cloister roof. The original capitals showed Norman scallops; but a large number of these with their abaci were destroyed by the French, and others of later design were inserted in their places. Very little of the ancient roof remained, and it was found necessary at the recent restoration to put an entirely new roof to the building. Having regard to the fact that for more than two hundred years the refectory had been used as a barn, it is wonderful that on the east wall below the arceding there still



THE GATE-HOUSE, ST. MARTIN'S, DOVER.

Drawn by Mr. J. TAVENOR-PERRY.

evidently become dilapidated, for in 1484 the will of a Robert Lucas was proved, by which the sum of 13s. 4d. was left for the making of a new cloister. Whether the whole or any part of this bequest was expended is unknown; no remains of work of so late a date have been found among the debris, but the gift seems to show that some rebuilding was necessary and contemplated.

On the north side of the cloister stands the refectory, the most interesting and the best preserved of the priory buildings, measuring 102ft. in length, 27ft. in width, with a height to the top of the walls and springing of the roof of 30ft. Round the upper part runs a graceful arcade of semicircular arches, carried on pilaster piers with nook shafts, and

remain considerable traces of a large painted wall of the Last Supper, stretching right across the full width of the bay. The figures are life size, and the nimbus has been moulded or stamped into the plaster background. At some time subsequent to the first painting it has been considerably "retouched," and the position of St. John's head slightly altered, and as the stopping of the old windows has now fallen out, the Apostles present the somewhat ludicrous appearance of bearing two "bashed heads." Though not so beautiful or so well preserved as Da Vinci's painting of the subject in the refectory of the Grazie at Milan, it is equally interesting, and almost unique in England. Towards the east end of the south wall, at the end of the aisle, was a

numbers, which apparently have been empty when the inventory of contents and furniture found in the refectory. The description was, "an iron stand, which does not suggest that the monks kept a luxuriously appointed table. This is a copy of it:—

"In the Vawte where the monks do dine, a wode table, ij forme, ij cushion of verder, ij booke of the Bybill, written in the Buttrye, next to the same Vawte where the monks do use to dine, ij salte of sylver parcel gyte, with a cover to the same, vñe de playne twelle, ij napkins playne, ij bason and ij earw of pewter, ij bell chandeliers, ij same lampe, v chaffyn dishes, &c. latter."

The entrance to the refectory was from the cloister at the west end, but the stone dressings, except those showing the outline of the arch, had all been removed; and though by some the sculptured voussour of a lintel arch found in the cloisters has been assumed to belong to this door, its place was more probably in the west door of the church. To the east of this doorway is an opening of three pointed arches, having beautiful mouldings, inserted in the wall perhaps in the 14th century, which was most likely the lavatory.

In houses of Austin Canons the prior's lodging was generally placed at the south-west angle of the nave; but there are no indications at Dover of there ever having been any buildings in this position. When William de Longville and the other canons from Merton came hastily to seize the New Work for their order it was in a very unfinished condition, and they were most likely expelled before proper accommodation had been found for them. The position, moreover, having regard to that of the town, would have been very inconvenient, and the chances are that the Benedictines erected this important building nearer the main Canterbury road and the Maison Dieu, and that all traces of it have been lost.

Farther along, westward of the church and facing towards the Folkestone road, stands the Priory Gateway, which appears to have suffered more from the French devastations than any other part of the convent. At the time of the attack it could have been but barely completed, and a considerable part of it seems to have been thrown down; but it was reconstructed at a subsequent date by using up, as far as they would serve, the undamaged ruins, with the result that in its details it shows many anomalies. The gateway entrance was originally groined and the building, at the side of the gate was a small chamber reached by an external staircase and lighted from the gateway by a small window; this formed a chapel, with a niche at the entrance for the holy-water sloop, and to the east a piscina and a recess for the altar. The only access to the upper floor must have been from adjoining buildings now destroyed, and there was some fireplaces, with several lintels of a very late date, and has a turret staircase in one angle intended to give access to the roof.

Still further to the west, at the angle of the priory enclosure, stood a great stone-built barn, which appears in the foreground of a plate representing the ruins in Grose's "Antiquities of England," from which it would seem to have been a fine example of the 13th-century work. To the north of the site, under the rise of the hill and at some distance remains of buildings of exact purposes of which are unknown; and among them, in a fairly perfect condition, is one which was most likely intended to be the guest house. It consists of a hall, 60 ft. long, with a narrow aisle on the north side, which together are about 35 ft. wide, with an arcade of six pointed arches on cylindrical shafts, having particularly graceful scallop-capitals of an unusual form, but to be found in the neighbouring church of St. Margaret at Cliffe. At the south end of the hall was a great fireplace, the chimney recess of which remains, and at the south-west angle was a turret. The windows are all of an early lancet form, but the doorways have been obliterated by the other openings which have been cut in modern times.

There were a large number of walls and ruins mixed up with modern farm buildings scattered about the site, the use of which could not be determined, many belonging to extensive works carried out in the 14th century, when we know that, among others, a bakehouse and a brewhouse were erected.

The seal of the priory, as figured in Hasted, shows St. Martin dividing his cloak with the beggar of Amiens, according to the old legend. The arms of the priory are given by the seal, Salted between four leopards' faces, or a cross, argent, which Mackenzie Walcott says were the paternal arms of the Prior Robert.

The report of the King's Visitors at the time of the suppression was to the effect that the house was in a decaying condition, bad management and diminished revenues having brought it to the verge of bankruptcy. Apparently the prior had been forced to borrow of the inhabitants and had mortgaged the goods of the convent for security; and in one case at least, where he seems to have run a long bill with his butcher, one Thomas Mansell, he had to take the very coat off the back of the image of the Blessed St. Thomas, which was garnished with divers brooches, rings, and other jewels, and give it in pledge for the payment of the account. The house was voluntarily surrendered by the prior and brethren on November 16, 1555; the buildings and revenues were granted to the see of Canterbury. The altars were not removed until 1549. The stalls were given to St. Mary the Virgin, Dover, and must have been destroyed when that church was restored early in the last century. The materials of the church were given to the town of Dover for the repair of the town walls and gates; and so, piece by piece, one of the finest monastic churches in the country was utterly swept away.

THE SCOTTISH NATIONAL PORTRAIT GALLERY.

The Scottish National Portrait Gallery, Queen-street, Edinburgh, reopened last week after its closure for annual cleaning. A number of new portraits are seen on its walls for the first time. One of the most important is the full-length portrait of Sir Henry Campbell-Bannerman, M.P., who was premier from 1905 to 1908. Painted by Sir James Guthrie, P.R.S.A., on a commission from admirers of the right hon. gentleman, the portrait, which was exhibited in the R.S.A. exhibition in 1908, has now been presented to the gallery by the Scottish Liberal Association.

A full length of James, first Duke of Hamilton, after the painting by Vandeyck in Hamilton Palace, has been hung. The portrait, which is a fine work of art, is a copy by a contemporary of the great painter.

Another new portrait is that of Sir James Stewart, of Coltness, who was outlawed for his connection with the Jacobite rebellion of 1685. The portrait, which was exhibited in the exhibition of Scottish portraits in 1884, was purchased recently for the Gallery at a sale. It is a bust portrait, and resembles one of the same gentleman in the W.S. library.

Another portrait recently purchased, and now hung, is that of James Syme, the distinguished Edinburgh Professor of Surgery, born 1799, died 1870. Professor Syme, attired in black, with white necktie, is seated on a chair, book in hand. The portrait is by George Richmond, R.A. (the father of Sir William Richmond, R.A.), who in his day was accounted a fashionable London portrait painter.

A full portrait, which was acquired at the Butler sale last year, is that of Patrick Adamson, Archbishop of St. Andrew's in 1576, who acted as Ambassador for James VI. to Queen Elizabeth in 1583. The work is in the style of the Flemish painter, Antonio Moro.

Another portrait of an early Scottish prelate has also been hung. This is a small head of William Forbes, Professor at Marischal College, Aberdeen, who was appointed by Charles I. first Bishop of Edinburgh. A portrait of the same gentleman, by Jamieson, is in Aberdeen.

The portrait (half-length) of James, 8th Earl of Lauderdale, by Thomas Phillips, R.A., a London portrait painter of the beginning of the nineteenth century, has also been placed. Born in 1759, the Earl, who died in 1839, was a well-known Parliamentarian of his day, and for a time was Lord High Keeper of the Great Seal of Scotland.

There is also a portrait of Richard Cooper, by Jeremiah Davison, a portrait painter who painted a number of Scottish notables, and whose works are not infrequently attributed to Allan Ramsay. He had among his sitters, Frederick, Prince of Wales, and Admiral Byng. Cooper was a well-known engraver in Edinburgh in the middle of the eighteenth century, and the master of the better known professor of that art, Sir Robert Strange.

In connection with the recent arrangements made between the Trustees of the National Galleries and the Royal Scottish Academy, the latter body have now permanently handed over to be with the National Collection, a number of works of importance which have been on view in the National Portrait Gallery. Among these may be noted the superb portrait by Raeburn of "Christopher North" as a young man standing beside his horse; the equally distinguished portrait of Lord Cockburn, by Sir John Watson Gordon; and the admirable portrait of Sir John Watson Gordon, by Graham Gilbert.

Several portraits handed over by the R.S.A. appear on the walls for the first time. Among these may be mentioned a portrait, cabinet size, of James Craig, the architect of the New Town of Edinburgh, painted by David Allan. Craig, in the garb of the day, is seated at a table with the plan of the New Town of Edinburgh before him. At his feet is a white curly poodle dog, and on the floor an engraving of the old County Hall. It was one of the pictures in the Laing Bequest.

From the R.S.A. collection is a well-known picture of David Allan, the painter, in turban and loose bluish robe, at his easel. It is by Dominico Corvi, and had been presented to the Academy by Mrs. John Greig, of New York. By the late James Archer, R.S.A., is an oblong frame of portraits of Scottish artists who were in London. They include Tom Faed, G. A. Lawson, the sculptor; Orclandson, Pettie, Tom Graham, and W. E. Lockhart.

There is from the R.S.A. (Laing Bequest) a portrait in pastel of Allan Ramsay by himself, full of character.

Among other novelties newly hung are a pencil drawing of the Princess Charlotte of Wales, the only child of George IV., drawn from her life by G. Sanders (this from the R.S.A.); a drawing of the late Sir Arthur Mitchell, K.C.B., by J. H. Lorimer, R.S.A., which had been left to the Gallery by the late Mr. J. M. Gray; and a drawing of the late Mrs. D. O. Hill, in her youth, by Alexander Blankley. Mr. Robert Herdman, an excellent portrait of Thomas Carlyle, which has been hung for some time in the Gallery has now been acquired by the Trustees. A small head of John Wilson, the Scottish vocalist, by Sir Daniel Mac'Nee, P.R.S.A., has been presented by Mr. A. W. Inglis.

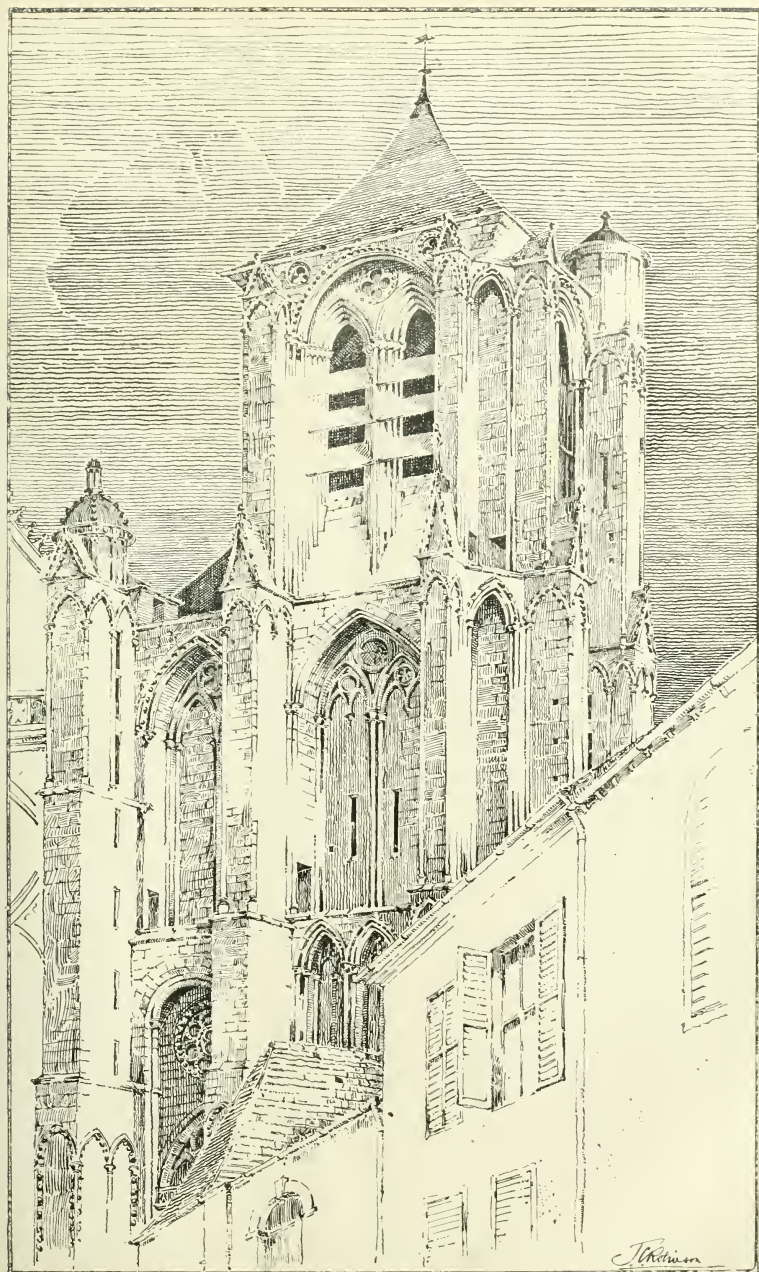
S.W. TOWER, BOURGES CATHEDRAL.

The magnificent external grouping of the Bourges Cathedral, with its five richly-decorated towers, two western towers, and two of flying buttresses over double aisles and chevet is sufficiently well known to render description unnecessary.

Internally, the effect of a nave of great height, unbroken by transepts, with ridge running uninterruptedly from west end to apse, is very impressive, and forms one of the finest examples of 13th-century French work. The north transept and choir doorways are Romanesque in style, with protecting porches having detail displaying Portuguese influence of late 14th century.

The sketch shows the smaller of the two western towers, with its interesting Renaissance cupolas surmounting the stain towers, and deeply recessed windows and tracery.

J. C. ROBINSON.



S.W. TOWER, BOURGES CATHEDRAL.

THE SOCIETY OF ORDAINED SURVEYORS.

The fourteenth annual meeting of this society was held in the Bazaar, 117, George-street, Edinburgh, yesterday evening. During the year two new members have been admitted to the society and one member has resigned.

The charter and the rules and regulations of the proposed Society of Chartered Surveyors of Scotland have been presented to the Privy Council. Objections to the charter were lodged by the Surveyors' Institution, and were considered by the society at a special general meeting. Answers were afterwards drawn up by the sub-committee on the charter and lodged with the Privy Council.

The attention of the society was drawn by the Edinburgh, Leith, and District Building Trades Association to the system adopted in the preparation of the schedules of quantities issued by the War Office for Redford Barracks, which differed materially from any system to which Scottish contractors are accustomed. The society made representations to the War Office, and has now received an undertaking from the Army Council that "in future, for building contracts in Scotland these differences will be adjusted to agree with the procedure generally applicable to Scottish methods."

The Glasgow Institute of Measurements has courteously submitted the rules for the measurement of digger work, which the institute proposes to issue, for the consideration of this society.

The treasurer's balance-sheet for the year shows that the funds of the society at the close of the financial year amounted to £432 19s. 8d. The Board met on four occasions during the past session.

There were, as usual, two diets of examination held during the year, in April and October. Six candidates in all were examined, of whom four were for re-examination. Of the six examined, one passed in one subject, and is through the examination; one passed in two subjects, and is through the examination; one passed in two subjects and failed in one subject; one passed in one subject and failed in two subjects; two failed in one subject. On production of leaving certificates two candidates were held exempt from the preliminary examination. No candidates presented themselves for the intermediate examination. For the final examination there were two diets held during the year, in April and October. Six candidates came forward, and all were successful in passing. During the year two indentures were registered.

THE ORIGIN OF STUCCO.

We do not know how early in human history lime was discovered. It was very long ago, perhaps 6,000 years. No doubt some householder built fireplaces of limestone and saw them crumble before his eyes. The same crumbled and turned into a white powder, afterwards becoming hard when water was applied. The addition of sand naturally followed to save expense, and the addition of sand was found to make a firmer and harder stone, and the mixture of lime and sand set much faster than the lime alone, when mixed with water into a mortar. Lime mortar was soon introduced into the interior of houses to form a base on which to decorate the walls. On the outside a small admixture of clay was found to enable it to better resist the action of the elements. Some man later found that when gypsum was calcined the result was what we now know as "plaster of Paris," which was used to shorten the time of setting and make a harder plaster.

The addition of about fifty per cent. of ground brick-dust or clay to lime paste made a hydraulic cement, one that would set under water. This discovery, made very early in the history of construction work, enabled men to erect important maritime works and cover houses with stucco which has lasted for centuries. The Romans mixed ashes from volcanoes in the vicinity of the village of Puzzuoli with lime and pro-

duced the famous "Roman cement," the secret of which was lost for nearly two centuries, and the search for which led to the discovery of Portland cement. The use made of Roman cement in making stucco was well known, but as the centuries went on without Roman cement, the masons forgot that anything better than lime had ever been used for mortar, either for interior or exterior work, and houses plastered on the outside were erected for poor people in all countries. The plaster was not durable, and only in Italy, where many trade secrets were preserved among masons, did the stucco house persist. A century or so ago the use of plastered exteriors came in again for houses of a good class, and plasterers and masons from Italy were employed. With the discovery of Portland cement the stucco house immediately became popular. Ernest McCollough, in an Address before the North-Western Cement Products Association.

CREDENCE, POITIERS.

Among the many interesting churches of Poitiers is the Romanesque church of Notre-Dame-la-Grande, with its barrel-vaulted roof. The west front—flanked by circular turrets—is profusely enriched with Byzantine



ornament. The turrets and central tower have curious conical roofs of stone, common in Poitou. The interior has been spoilt by garish colour-decoration, completely covering piers, roof, etc.

The credence illustrated is in one of the chapels, and is a charming specimen of 14th-century carving. It measures 2ft. 3in. by 4ft. 6in. (extreme height).

J. C. ROBINSON.

MODERN PRACTICE IN REINFORCED CONCRETE.

By C. A. P. TURNER, Minneapolis.

It may not be amiss to call attention to the fact that this type of construction is no longer new and novel, but its advantages from the standpoint of utility and economy have been so thoroughly demonstrated that only those who are unwilling to keep abreast of the times are lacking in general familiarity with it. I propose merely to call attention to the

well-known advantages of reinforced-concrete construction, and then to take up those questions of design and execution which should be clearly borne in mind in order that no difficulty or accident may result in the execution of the work. From the economical standpoint I may say that for heavy war-house construction reinforced concrete is cheaper than the old style of timber mill frame, since the price of lumber has steadily advanced and its quality deteriorated as our forests are cut away. For lighter buildings, having a capacity of 1000lb. to 1500lb. per foot, reinforced concrete costs more than timber construction; but its advantages from the fireproof standpoint and its permanence and the reduced cost of insurance should cause the careful investor to think twice before putting up the old fashioned fire-trap construction.

As compared with structural steel, reinforced concrete is invariably much cheaper for the skeleton of a building, and a saving in cost of from 50 to 75 per cent. of the structural steel frame may be readily effected by the adoption of the more modern type of building.

We have, in many cities, building codes distinctly adverse and unfavourable to reinforced concrete construction. These codes have been adopted, not by a careful study of test data, but rather with the idea of making it difficult for the pioneer in reinforced-concrete construction to work at all. Such codes, however, are being amended from time to time, for the owner who ultimately pays the bill becomes cognizant of the increase in cost due to ordinances that are unfair to this type of work, and he is taking some interest in seeing that such rules and regulations are revised and brought up to date.

REINFORCING MATERIAL.

In considering the execution of work in this line, a few remarks regarding the materials which enter into it may not be amiss:

For reinforcement, many engaged in the manufacture of bars seem to consider that anything at all is good enough to be buried in concrete work. Thus we have bars of bushel steel, a mixture of miscellaneous steel and iron scrap, more or less imperfectly welded together and placed on the market as mild steel. In ultimate strength this material generally runs about 48,000lb. to 50,000lb. It bends easily, is softer than mild steel, is lacking in strength, and its quality is readily ascertained by nicking a bar and breaking it short with a sledge, when it will show a dull instead of a bright and crystalline fracture.

Then we have the old rail stock bars rolled from old rails. Some of this material, when properly treated, is fairly tough, and stands a good test. Other samples of it will be found so brittle as to snap short at times in handling. It can be purchased as a rule at 24c. to 30c. a ton under the market price for billet steel; but the conservative engineer and architect is inclined to reject it entirely, on the ground of lack of reliability. Material meeting the manufacturers' standard requirements for medium steel, Bessemer or open hearth, is to be preferred.

We have received from some mills bars running from 75,000lb. to 85,000lb. ultimate strength, with an elastic limit of 50,000lb. and an elongation of 27 to 30 per cent. Such material presents the desirable characteristics of unusual toughness and high ultimate strength and elastic limit, and is, as the writer looks at it, an ideal stock.

Manufacturers of all brands of Portland cement are well to their efforts to turn out a product which is as uniform as possible. As a result the statement is justified that among those brands which have been on the market for a period of five years there is a greater degree of uniformity in Portland cement than the merchant steel on the market to-day.

READY TESTING METHODS.

Where the contractor has no equipment at hand for making tests of the strength of briquettes, he can readily determine whether the cement is finely ground or not by feeling of it. He can readily make a boiling test and determine whether the cement is sound, without expensive equipment. This ac-

elaborated test can be quickly made, and the result of the test, if the put is satisfactory, practically removes any doubt as to the character of the material.

The strength of concrete depends:

1. On the grade of sand and the proportions of the cement to the sand in the mortar.

2. Upon the hardness and character of the coarse aggregate.

3. On the manipulation and the conditions under which the concrete is cured or hardened.

4. On the age of the specimen.

A mortar made with a very fine sand is only about half as strong as that made with coarse and medium grains, and for this reason the specification regarding the character of the sand should be given careful attention. Dust, silt, and loam occurring in appreciable proportions in the sand should be cause for its rejection.

The character of the sand may be readily investigated by taking a two quart preserve jar, filling it half-full of water, and then pouring in about a quart of the sand, putting on the cap and shaking well, when the coarse grains will go to the bottom, the finer to the top, and the silt and clay will settle on the surface. More than 3 per cent. of dust or clay should be cause for rejection.

Where the concrete is exposed to the weather, the aggregate should be of such material that it will weather well and will not be affected by frost. A soft, porous stone may readily cause a disintegration of the concrete work. Granite, trap rock, or other hard natural stone will, of course, give a concrete far exceeding the strength of concrete in which shale or softer material is used as an aggregate.

The strength of Portland cement concrete in compression is equal to that of our best building stone, with the advantage that it can be placed in a monolithic mass. Its tensile strength, like that of stone, is greatly inferior to its strength in compression. Concrete yields but little, the stretch being confined to a weak section. When, however, steel is embedded in the concrete and properly eliminated through it, the deformation under tension is many times greater before fracture occurs.

The conditions leading to the combination of concrete and steel for building work may then be stated as follows:

Concrete is an excellent and trustworthy material for compression and steel for tension. Hence the steel should be distributed in such a manner as to carry the tensile chord strains and tensile web stress. To do this economically, we can reason by analogy from a truss or beam. The further from the neutral axis the more effective the steel section. Hence the reinforcement should be at the bottom of a simple beam, or as close to it as satisfactory protection against heat or fire will admit. Now, the beams in a building are a constant section, and since a continuous beam is stiffer and stronger than a beam of the same section discontinuous over supports, the ideal concrete steel beam should be continuous and the top flange reinforced over supports. Where this type of reinforcement is used, the bars may be bent downward toward the point of contraflexure, and the main tension members then can be utilised to resist shear directly.

PRECAUTIONS IN EARLY STAGES.

Many types of design prove satisfactory when the concrete has had ample time to thoroughly cure and harden; but during the early stages of hardening, and since the time when the average foreman would remove the supports, the concrete, not having developed its full degree of strength and hardness, proves itself weak in resisting shear. Accordingly the conservative engineer and designer should take the precaution of reinforcing the mass in such a manner that at this critical period of construction there will be little, if any, opportunity for failure to result. Ample lapping of the reinforcing bars over the supports and thoroughly tying the mass together as a monolith by the designer would have prevented the majority of disastrous failures that have occurred in the past in putting up reinforced concrete building work.

In the majority of cases where failures have occurred, had the forms been left in for a much longer period no failure would have resulted, and the buildings might have proved commercially successful, useful, and fairly satisfactory. On the other hand, while in the past the responsibility for failure must be shouldered by the workmen putting up the construction, the designer who failed to take these essential precautions cannot escape his share of the responsibility for the results.

The majority of failures have occurred through insufficient lap of the reinforcements over the supports and tying the work together, these failures being floor failures, and in the majority of cases shear failures of partly-cured concrete. Such examples as this are those of the Long Beach Hotel, the recent failure of the Prest-O-Lite building in Indianapolis, the failure of the Fairbanks building in Canada.

Some column failures have occurred in reinforced concrete buildings, but they are few in number. As an example of this character, the Henele building in Cleveland, Ohio, may be cited. Here there was an unusually large amount of vertical steel in the column, but the hooping was almost, if not quite, lacking. A few ties, consisting of hay wire, wound around the reinforcement at distant intervals, was the only provision made. The collapse of this building was practically complete, although undoubtedly the work would have stood up had the concrete been given ample time to cure and harden.

FLAT SLAB AND COLUMN CONSTRUCTION.

During the past four or five years the type of flat slab and column construction originated by myself has been widely adopted. In this type of building the principle of continuity recommended for beams has been carried out, and bending is resisted not only by radial forces but by circumferential stresses around and in the vicinity of the column in the upper part of the slab and in a similar manner in the bottom of the slab, between supports. As we consider the flat plate about the column in bending downward the distortion of a circular section, having a centre at the column, is evident. 25, or 6.27 times the distortion of a radial section, and the work done by the circular or circumferential reinforcement may be better understood by this comparison. It is the resistance of the bending stresses in this manner which enables the use in this type of construction of comparatively shallow thicknesses of floors, and enables it to develop the enormous strength exhibited in many tests that have been made upon it.

The advantages of the type may be stated as follows: Some saving of materials where the loads are heavy. The elimination of beam-boxes and a saving in centering and better light obtained by the elimination of beams.

I have called attention to the failures due to the early removal of the forms and the failure of certain designers to get up conservative designs. A few remarks regarding the conduct of the work, especially at that period of the year when the majority of accidents occur, will be in order—namely, during the chilly weather of the fall and cold weather of the winter.

The hardening of concrete is a chemical action accelerated by heat and retarded by cold. In temperatures below 45deg. F. it frequently happens that the cement lies dormant and the hardening process progresses with extreme slowness, if at all. The foreman, or superintendent, on the work who considers that all that is necessary is to leave the forms in place and support the mud so many days, and then is disappointed when the concrete is liable to run into serious difficulty in putting this notion into practice. As soon as the temperature is below 45deg. F. the water used in the mixing of the concrete should be heated to about 90deg. or 100deg., and the concrete put in place warm. Then the setting will progress almost as rapidly as in the summer-time.

WINTER WORK AT FORT WILLIAM, ONT.

In a building, the reinforced concrete of which was designed by the writer and erected by a Minneapolis contractor in Fort William,

Ont., the roof slab was cast on the 7th of last December, at a temperature 15deg. below zero. The concrete was kept hot by a number of salamanders, and was not permitted to freeze. On the 15th of December, while the workmen were placing cork insulation on the lower floor, a fire started by workmen getting a little of pitch to melt one of the salamanders, and the concrete under the second floor and roof was burned out. The work did not collapse, but was damaged to only a slight degree. Results of this kind are in strong contrast to the work in the Prest-O-Lite building in Indianapolis, in which a complete collapse occurred after the concrete had been cast between four and six weeks.

More of the troubles in concrete work occur, not because there has been a collapse, but because the work gets out of shape. Slabs and beams deflect and get out of line, although collapse does not occur. It is a rather difficult matter to determine just when concrete, especially when it is put in during the chilly season, has fully cured. Driving a nail into the concrete and seeing whether it will penetrate into or merely double over, digging out a piece and placing it over the heat of a stove, and seeing whether it softens up under the heat, or whether it retains its hardness and rigidity, are good and safe methods to determine whether the work will stand up after the removal of the forms; but these methods only are not sufficient to determine whether the concrete will preserve the form intended without some inelastic deflection after the forms have been taken out. To eliminate trouble from this cause we now require a small amount of sub-centering to be left in each panel two or three weeks after the removal of the forms proper. This is an excellent precaution in carrying up the building rapidly, and it is necessary for economy to use the lumber over and over and by removing the bulk of it and leaving a few props under the panel this inelastic deflection is prevented, and the form lumber utilized to the best advantage.

In conclusion, it may be stated that in the line of concrete construction, honesty in executing work and in the use of ample cement is the cheapest policy, since a rich concrete hardens much more rapidly than a lean concrete, and the amount which a contractor could save by skinning on the cement used is lost many times over in the additional time that he will be forced to keep the forms in place; hence the experienced contractor is more inclined to use more than the amount of cement specified than less, as he believes in good reason that he can actually save money by using a sufficient amount, so that the concrete hardens quickly, and he can remove the forms at the earliest possible moment.—*Contract Record.*

HINTS TO YOUNG VALUERS.*

The three previous editions of this excellent handbook have made it too indispensable to the conveyancer to need any word of commendation of ours as regards its scope and purpose. Recent legislation, however, has rendered the present edition absolutely necessary. The provisions of the Finance Acts of 1909-10 and 1910, the Licensing Consolidation Act, 1910, the Law of Distress Amendment Act, 1908, the Alotments Act, 1906, and the Agricultural Holdings Act, 1908, are therefore included, and the effect of recent decisions on new points in relation to the laws of rating and compensation is also fully explained.

Not merely to valuers will the book be useful, or to those who are preparing to become such. To landowners, or those who charge of properties, and to investors and speculators it is really indispensable. Land was, perhaps, never a "gamble" in England; but really recent legislation has made it more necessary than ever for all concerned with it to carefully consider new contingencies that have arisen, which, if ignored, will entail disaster, and no better guide to the escape therefrom exists than this textbook.

Hints to Young Valuers: a Practical Treatise on the Valuation of Property. By ANTHONY RICHARD CHAMBERLAIN, F.R.S., With Local Examples by J. V. MARCHANT, M.A. Fourth Edition. London: Land Agents' Record, Ltd., 149, Strand, W.C. £1 5s.

CURRENTE CALAMO.

Much more interest was manifested in the House of Commons on Tuesday in the shilling dinner and the champagne, on which our four-hundred-pounders regale themselves, than in the sub-sequent debate on the Budget. Was it, as hitherto, to include "two sweets in addition to joints—sometimes three helpings from the joint—vegetables, cheese, butter and bread"? And the champagne? Is that still to be supplied at "five shillings a bottle below the price outside"? Having wrung a promise of a committee to consider these vital (vittle?) questions, nobody troubled much! Mr. Lloyd George is going to do with his surplus of six and a half millions, half of which has been wrung from us by over-taxation.

Let lucky Lib-labs lick their lips,

Pile taxes up by billions;

Their shilling gorge, thanks to Lloyd George,
Is safe with his six millions!

Let us, at any rate, hope that honest Wat Thorne's anxiety about the price of champagne will be placated by the distribution of a few dozens at the next meeting of the unemployed on Tower Hill, just to drink the health of the canny Chancellor, whose motto is, "Stick to a surplus when you get it!"

The paper which Mr. C. McArthur Butler, the Secretary to the Society, is to read before the Society of Architects next Thursday evening deserves the fullest attendance possible, not merely of members of the Society, but of all architects who regret that the architectural profession as a whole is, at present, without any publicly recognised schedule of the principles to be observed in practice, with no publicly recognised competition regulations, scale of charges, or penal code. All regulations which are at present recognised, or partially recognised—except the one relating to competitions—being more in the nature of expressions of opinion, and relying on custom for their enforcement, at any rate, so far as they relate to or bind unattached architects.

Every architect, in fact, is a law to himself, except so far as his voluntary obligations to any professional society he joins are concerned, and if these are broken and he is expelled the effect on public opinion is nil. Except for non-payment of their subscriptions few members of such societies are ever removed. The unattached architect is, of course, under no control whatever, and he may do whatsoever pleases him. Is it desirable that this should continue? Is it in the least likely that Parliament will ever give Registration without some guarantee of uniformity of practice, and the recognition by architects of a professional standard of uniform responsibility to the general public?

Mr. Montague Butler's suggestion is intended to meet present needs. We are not going to anticipate its scope and purpose here further than to say that we absolutely endorse his preliminary assumption that architects outside architectural societies—we should say ourselves, architects at present inside societies as well—are not in the least likely, and could not be compelled, to adhere to any general schedule or code devised or administered by any other controlling body than one representing the whole of the profession. Neither the Institute nor the Society can expect to become that controlling

body, as things are. Can any other such controlling body be devised? Mr. Montague Butler sets himself to answer this question, and we hope his suggestion will be exhaustively discussed next Thursday. He has, at any rate, brought an amount of research to bear on his subject as entitles him to the fullest hearing.

The *Sanitary Record* instances as a proof of a necessity for a certain course which it recommends an incident which, certainly, if the local newspaper report quoted is correct, is not creditable to the Chichester City Council. According to this report, at a recent meeting "Councillor Butler drew attention to a paragraph in the report of the sanitary committee which related to certain property of which he is the owner, in which the surveyor was instructed to write the owner pointing out what repairs were required. Councillor Butler, pointing to the surveyor, spoke of that official in language which was quickly resented by the mayor, who said he could not allow it. 'He is not a member of the council, he is my servant,' said Councillor Butler, etc. Councillor Butler proceeded to speak in calmer tones for a time; but presently he returned to the action of the surveyor, and, gesticulating wildly, shouted at the top of his voice, 'I'll see him to — before I do anything more.' The efforts of the mayor to bring the councillor to order were met by Councillor Butler retorting, 'And you are as bad as the surveyor! I don't care for you—I don't care for you!'

Our contemporary is quite reasonably shocked, and is impelled to ask whether the Local Government Board should not, in the interests of local government, press for a short Act making it unlawful for builders and building owners—just as it is by the Local Government Act, 1894, made unlawful for a person interested in a contract—to be a member of a district council. A builder or building owner, the *Sanitary Record* declares, most rarely seeks representation on a public body except for his personal interests—that is, to insure that his property secures protection against the interference of the council's officials. Ratepayers, in the opinion of our contemporary, require protection against the machinations of such interested persons with equal, or probably more, cause than against contractors, for insubstantial property which builders seek to protect by becoming councillors is more detrimental to the ratepayer than the advantages which a contractor can secure.

Now, that is just the sort of screamy protest that does more harm than good. We ourselves worked for six years on St. Pancras, and have a most pleasant recollection of the disinterestedness and zeal with which one well-known builder, then a colleague of ours on the Council, laboured for sanitary reform. Really, property-owners, even when builders into the bargain, are not all rascals or bullies. A decent builder has in many ways more interest than his brother ratepayers in sanitation, and it must be a cowardly sort of Council that permits itself to be cowed by any member who is a mere self-seeker. Just in the same fashion we have seen it urged by some fanatics that publicans and clergymen have no right on municipal bodies, because they are opposed to certain causes which some doubtless earnest people have at heart. Intolerance of any phase is never very par-

ticular about its victims. The worst of the bigotry of this sort prejudices many good causes. Let us all, by all means, sit down heavily on offenders of the sort indicated in the report whenever they transgress; but remember, that if we rush off to tar the wicked flock as well as the erring sheep, we simply make ourselves ridiculous.

The efforts attributed to Lord Haldane to raise a million sterling to provide a new home for the London University, on the site behind the British Museum, are evidently not regarded with favour by some friends of the University. The authorities have had no opportunity of expressing an opinion on the scheme, and they feel, naturally, that if a large sum is raised with one particular site in view, they may be committed to a project of which they do not approve, or prejudiced in their efforts on behalf of a more suitable plan. It is also felt that the price of the ground, taking its building value into account, is unnecessarily dear, that the locality is not more accessible than the present building in South Kensington, and that splitting the building into four blocks will be a mistake. Some common centre doubtless is needed, and was strongly recommended by the Commission which recently investigated the University affairs; but the difficulty of obtaining a large enough site has so far been insuperable. If Bloomsbury is finally selected, we say again that Mr. David Niven's scheme, which we illustrated in our issue of the 22nd ult., is infinitely preferable to the suggested location north of the British Museum. The establishment committee of the Senate of the University of London have, meanwhile, instructed the Principal and officers to prepare a report comparing the accommodation available on the site of the present central offices with that which would be obtainable on the various alternative sites which have been suggested.

The Royal School of Art Needlework, in their printed advertising matter, obtainable by any member of the public, make the following offer: "Cards of introduction given to a City house, where all modern furniture, carpets, rugs, bedsteads, blankets, linens, etc., can be procured at wholesale prices for cash." The *Journal of Decorative Art* remarks:—"Not only do we regard this offer as unfair to retail house-furnishers, but as out of keeping with the traditions of the school and the Royal patronage which it enjoys." A retailer has sent our contemporary an actual card of introduction to the wholesale house in the City. It asks, therefore, are members of the public charged actual wholesale prices, without any added percentage of any kind? If the answer is in the affirmative, it contends, such a transaction is grossly unfair to the retail trader. If a percentage of any description is added, the public is being induced to purchase by methods which are open to serious question. We think our contemporary's question should be answered. Things done sometimes with the best possible intentions are liable to misconstruction.

A new hall for the Order of Foresters is being added to their house on Rutland-square, Dublin, from plans of Mr. W. A. Scott, A.R.I.B.A., 45, Mountjoy-square. The cost will be about £1,500.

Messrs. Robert Corry, Ltd., contractors, University-street, Belfast, have secured the contract for the new Co-operative Lecture Hall, Belfast. The architect is Mr. Samuel Stevenson, 83, Royal-avenue, Belfast.

UNIVERSITY COLLEGE, LONDON.

Dr. J. J. Burnet has been appointed architect-visitor to the class of Advanced Academic Design for the Session 1911-12.

Mr. Hayard Thomas has been appointed teacher of Sculpture for the Session 1911-12.

The following obtained certificates in Architecture—H. M. Gimson, G. M. Mayhew, E. P. B. Musmanni, I. Omar, Mary Salmon.

In order to facilitate the closing of Little Gower place and to improve the site for the new chemical laboratories, No. 134, Gower-street, and the stables at the rear thereof, have been purchased. The order for the closing of Little Gower-place has just been granted. Preparations are now being made for the clearing of the site, so that building may be proceeded with at an early date. Professor F. M. Simpson has been appointed architect by the Senate.

It is hoped that the remaining £10,000 will be raised without delay, in order that the whole scheme may be carried forward as quickly as possible.

The need for better accommodation for the School of Architecture has been prominently before the college authorities for many years. In view of this need, and also of the limited accommodation for architecture at King's College, the Senate appointed a committee to consider the organisation of architectural teaching. After receiving the report of the committee, the Senate decided, if and when funds were forthcoming for the provision of an adequate building to combine the Schools of Architecture of University and King's Colleges in a building to be erected at the north-west end of the college site.

The rapid growth of the Slade School has rendered it impossible to provide adequate space in the college buildings for sculpture studios. Temporary studios for this purpose have been rented in the neighbourhood of the college.

The Senate received at their December meeting a communication from the Chancellor of the University (the Right Hon. the Earl of Rosebery), conveying an anonymous offer to erect the buildings for the combined School of Architecture, together with the following so far as a sum of £30,000 will suffice, viz., studios for the teaching of Sculpture, and the rearrangement of the School of Fine Art, and the Department of Applied Statistics, including the Laboratory of Eugenics. The Senate, after receiving a report from the college committee, have accepted the offer, which will provide for the needs, in the way of buildings, of Architecture and of Sculpture completely; but the committee are not yet in a position to state how far the gift will avail to meet the needs of the Department of Applied Statistics, including the Galton Laboratory of Eugenics.

The redecoration of the south cloisters and the rearrangement of the students' cloak-rooms has been long delayed, owing to lack of funds; but the committee have been removed by a gift from Mr. and Mrs. Walter Bailly of £1,000. What they propose is the rearrangement and decoration of the south cloisters and cloakrooms, and that the floor of the cloisters should be more decorated than Professor Simpson has, from motives of economy, suggested.

Mr. T. Shield, of Barksland, Halifax, has been appointed surveyor to the Denby and Cumberland Works Urban District Council.

The foundation stone of a new catholic church at Eastwold, Lincs., was laid on Monday week. Mr. G. R. Birkinshaw, of Leeds, is the architect, acting locally on behalf of Mr. J. H. Eastwood, A.R.I.B.A. of London, and the contractors Messrs. Swift Brothers.

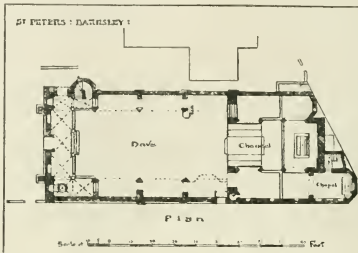
The portrait in oils of himself, which the Italian Government has invited Commendatore Walter Crone, F.W.S., to paint for the Uffizi Gallery, Florence, is now completed, and it will be shown together with a selection of drawings and water-colours by this artist at the Leicester Galleries, Leicester-square, on and after Saturday 13th inst. Exhibitions of cabinet pictures and water-colour drawings by Harold and Laura Knight, A.R.W.S., and water-colours of "Country Folk" by Henry Henshall, R.W.S., will be held at the same time in these galleries.

Our Illustrations.

ST PETER'S CHURCH, BARNESLEY.

The four photographs and plan given here will illustrate this church, which has just been consecrated, the building having been erected from the designs of Mr. Temple Moore, F.R.I.B.A., F.S.A. The site occupies a very long and unusual piece of land with a considerable fall to the east. The choir is of three bays, and the Lady chapel is formed out of the southern aisle, and extending eastward and filling up the angle made by the junction of the two roads. There

adornment being reserved to the pinnacles ranging along the parapet, as at Madley. The capitals to the piers are very beautifully carved with roses and larger big-leaved foliations. The Lady chapel in the eastern aisle of the north transept, with its semi-octagonal projection, is exquisitely groined, and has a reliable, the windows being at the sides. This aisle is the only one which has the original vaulting completed, though springers were built in for the whole to be groined. The vaulting to the west aisle is modern, rising upon the original springers. The registry over the great south porch was used for the parish books, though it originally is said to have been built for a



is a lofty clerestory to the choir, the east window of five lights is of large scale, rich in tracery. The chapel has a groined ceiling. The nave is of the wide-span type, and it is divided into four wide bays. There is a processional path on the north and south sides. Above the arcading is a corbelled passageway. The western end of the nave is occupied on the ground level with three porches, and a gallery is arranged over same, carried by three arches opening into the church. The narthex is groined, and this part is higher than the nave floor. Local brick is used externally, with thin brick courses intermingled, to give scale to the work. The treatment is severely simple. The bell is placed in a simple turret at the south-east corner of the nave. The general style adopted is 14th century of the English type of Gothic. The revoles of the high altar and also the altar of the Lady-chapel are old Swiss work, probably dating from the end of the 17th century. The nave is 91ft. long, 49ft. wide, and 45ft. high. The length of the chancel is 40ft. and 20ft. wide. Messrs. J. T. Wright and Co., of Leeds, are the builders. Mr. Thomas Fisher was the clerk of the works.

ST. PATRICK'S CHURCH, PATRINGTON, YORKSHIRE.

NATIONAL GOLD MEDAL DRAWINGS.

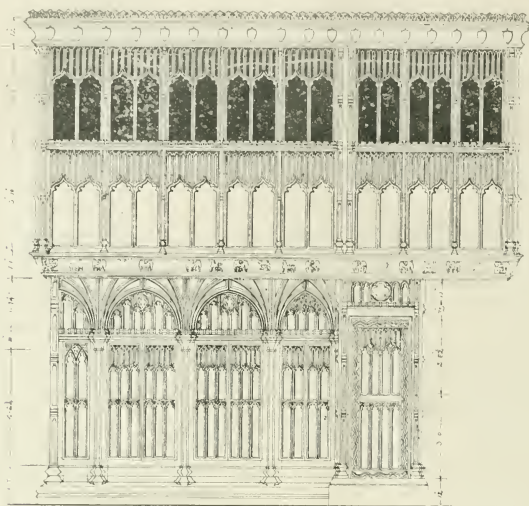
The plan of this remarkably fine and most interesting parish church of the East Riding is very similar to the lay-out of York Minster, save that the chancel has no side aisles; but the east and west aisles to the transepts in a parochial church are very unusual. The western towers at York have, of course, no counterpart in this building; but the central tower is exceedingly handsome and tall, the spire rising over an octagonal drum as at Wilby, Bloxham, and Norwich. The style of this famous church, which was rebuilt de novo between 1325 and 1350, the great period in glorification and reconstruction of English parish churches, has been fittingly and tersely described as one of the most retrogressive examples of its date, with its massive piers and the notable absence of a clerestory, in which respect it conforms to the great churches of Yarmouth, Grantham, Nantwich, and North Walsham. The cruciform plan gives it great distinction, however, though the want of a clerestory makes it an exception in the category of big-aisled churches like Howden and Hedon. The buttresses are studiously plain, the only

sacristan's chamber. There is a hammer-beamed roof in the transept, the great feature in the main roofing being a fine example of arched braces supporting the collar, which are very small and exceptionally high up, perhaps the highest old example, and offering very little tie in consequence. Its date is 1340. The walls of the aisles are only 2ft. 3in. thick. The total length of the church is 190ft., and the width, including the aisles at the west end, is 140ft. This is 6in. less than the width of the aisled transepts. The chancel is 22ft. 6in. wide. The west window is rather Flamboyant in the patterning of its graceful tracery. That of the east window, which is much larger, is Rectilinear with curvilinear mouldings. The side windows illustrate two patterns of tracery, those in the choir being larger, and the ridge of this part of the church is somewhat higher than the nave. This double page was reproduced some time ago from a fine set of delicately-executed drawings, for which Mr. William Haywood was awarded a National Gold Medal. We were not quite satisfied with their reproduction, but decided to give this sheet now, as it makes a valuable record of this very beautiful example of pure English Medieval design.

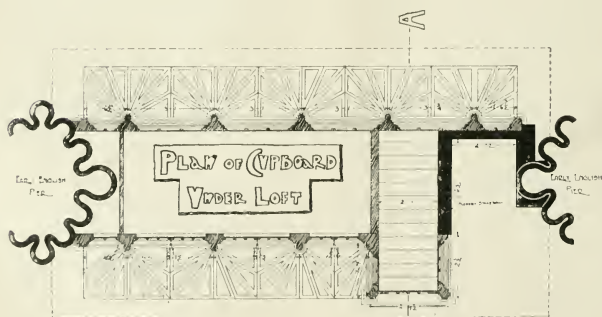
OAK WATCHING-LOFT, ST. ALBAN'S ABBEY.

The watching-loft, situate on the north side of the Saint's Chapel, St. Alban's Abbey, is of oak, and was constructed during the reign of Richard II., 1377-1399; its badge appears on it. From the windows the monks kept guard night and day over St. Alban's Shrine, which is in the centre of the chapel. In those days the shrine was covered with precious stones, and the relics, which were still more valuable, offered serious temptation to other monks belonging to rival monasteries, and other miscreants with an eye to plunder. The loft is in splendid condition with the exception of the cornices at back and front; these have been drawn complete on this illustration from the remains that still exist. The loft has two stories, the lower one containing emboards in which vestments and relics were kept, and the upper room, which was reached by the oak staircase, consisting of solid steps. The panels, including the mullions, with few exceptions, were carved out of one piece. Cromwell ordered the front of the loft to be covered with several coats of whitewash; traces of this can be seen to this day. REGINALD P.WELL.

ST ALBANS ABBEY CHURCH | OXFORD



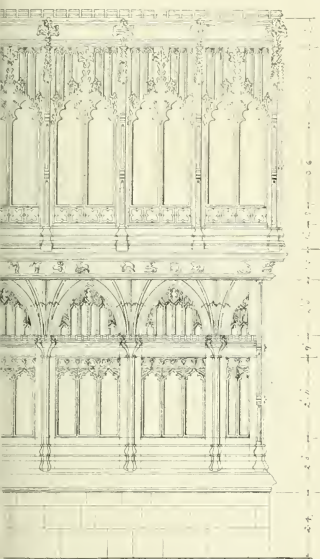
ELEVATION TO THE SHRINE



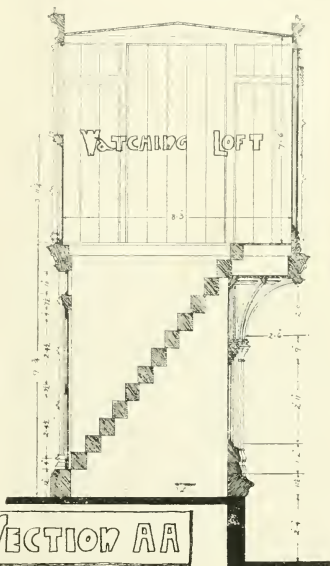
SCALE

SCALE = 1/2 INCH TO 1 FOOT

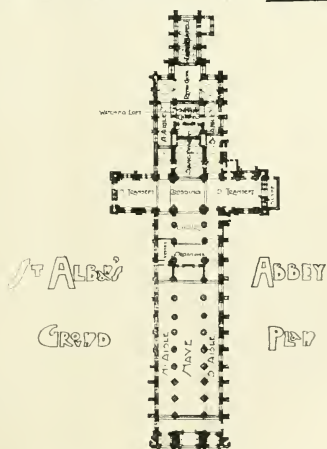
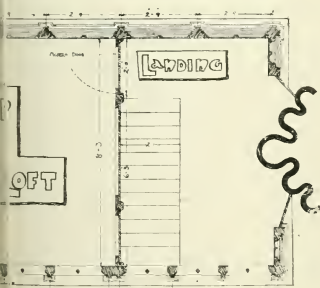
DRAWING OF THE OAK WATCHING LOFT



ELEVATION



SECTION AA



THE WORKS FOR THE WATER-SUPPLY OF BIRMINGHAM FROM MID-WALES.*

By E. L. MANSEGH and W. L. MANSEGH, M.I.M.S.E.

The Elan supply-scheme was originated in 1890, by the late Mr. James Mansergh, F.R.S., M.I.M.S.E., in consequence of the inadequacy of the then existing sources. These, consisting of five local streams and six wells in the New Red Sandstone, had proved insufficient to meet the needs of the city and district, which then had a population of about 648,000. Investigation having shown that no extension of the local sources would be satisfactory, the Welsh scheme was laid before Parliament in the session of 1892, and the necessary powers were obtained. The watershed of the Elan and Claerwen, which is situated in Radnorshire and Breconshire, has a gross area of about 15 square miles, and a mean rainfall of 65in. The collectable rainfall is estimated by the authors at 37in., giving an average yield of 102 million gallons per diem. The first instalment only, that is, works for the supply of 25 million gallons per day at Birmingham, and the prescribed quantity of compensation-water to the river—namely, 27 million gallons per day—was then present being constructed; but the powers granted cover the full utilisation of the yield of the watershed and works necessary for a total supply of 75 million gallons per day to the city and district. Three reservoirs have been constructed:—The Caban Cŏch, which is a combined supply- and compensation-reservoir, containing 1815 million gallons, with a dam 122ft. high; Pon-y-gareg, for supply only, containing 1,330 million gallons, with a dam 123ft. high; and Craig Cŏch, also for supply only, of 2,000 million gallons, with a dam 120ft. high. These reservoirs are all on the River Elan, and three more on the Claerwen are contemplated when the demand for water justifies their construction. For the Elan, the Ely-mynach reservoir—the foundations and the dam of the dam have been already built in order to get the work above flood-level of the Caban Cŏch reservoir. A submerged dam has also been constructed in Caban Cŏch reservoir to maintain such a water-level as will charge the aqueduct to Birmingham.

From the Claerwen Valley a tunnel has been driven connecting it with the latter reservoir above this submerged dam, in order to bring into supply the dry-weather flow of that river. The compensation-water which has to be discharged into the river day by day in a regular flow has been utilised to produce water under pressure to work a large number of valves in connection with the Caban Cŏch dam and the valve-tower at the head of the aqueduct, and also electricity for lighting and power purposes. The latter is required at the head of the aqueduct in connection with an installation of roughing-filters, which had to be made in order to free the water from germs which elsewhere had been found to cause deposit in cast-iron pipes. A short permanent line of railway was constructed from the Mid-Wales Railway at Blaenau Ffestiog to the lowest dam, and while the works were in progress some thirty-six miles of main line and sidings were constantly in use. In addition, a number of ancillary works—such as roads, bridges, culverts, etc.—were constructed on the watershed. The aqueduct, which is nearly seventy-four miles in length, consists of two main classes of work: conduit in tunnel or cut and cover, and steel or cast-iron pipes under pressure crossing valleys. There are fifteen tunnels with an aggregate length of twelve and three-quarter miles, and the cut-and-cover conduit is about twenty-three miles in length. The inverted siphons, of which there are eleven in all, have an aggregate length of nearly thirty-six and three-quarter miles, and are under pressures to which they are subject and are between about 25lb. and 250lb. per square inch. The pipes in the siphons vary from 41in. to 42in. in internal diameter, according to the ground obtainable, and are for the most

part of cast iron, but for pressures over 400ft. of head, welded steel pipes were used. Out of an ultimate total of six lines in each siphon, two only have been laid for the first instalment. The ruling gradient for the conduits, which are laystack shaped (approximately 8in. by 8ft.), is 1 in 4,000, and that for the pipe-siphons is 1 in 1,760. At the heads of all the siphons rather elaborate automatic arrangements are made to cut off the water in case of a pipe bursting, and also at the outlet ends to prevent water flowing back under similar circumstances. Sluice valves, air valves, and wash-outs of the usual description are provided on the lines of pipes.

With a few exceptions the pipes are carried over all streams and rivers crossed, and this has involved the construction of several large bridges, the chief of which is at the crossing of the River Severn between Bewdley and Arley, where the river itself is spanned by a handsome steel arch of 150ft. span. The aqueduct terminates at the Frankley service-reservoir, about six miles to the south-west of the centre of the city. This reservoir, which holds a little over 200 million gallons, is semicircular in plan, divided into two segments, about 30ft. deep, and is constructed of concrete lined with asphalt and blue brickwork. Eighteen ordinary slow sand-filters, having an aggregate area of about fourteen acres, have also been installed, as all the water is filtered before use. Although the top-water level of the reservoir, 605ft. above Ordnance datum, is high enough to supply water to the greater part of the city by gravity, for certain parts pumping had to be resorted to. A pumping-station is, therefore, provided to raise water to two high-level service-reservoirs, the one about three-quarters of a mile to the south and the other about three and a half miles to the north of Frankley reservoir, each of about 1½ millions gallons capacity. Approximately, eighteen and a half miles of main and branch pipes have been laid to carry the water into the trunk mains in the city. The works in the valleys were carried out by direct administration, and the remainder by contract, and the total cost of the whole of the works, including land, was, in round figures, £3,750,000.

CEMENT FINISH.

An American contemporary, *The Modern Painter*, has an interesting article on cement finish, which has come very largely into vogue across the Atlantic, as it has with us on this side. The writer, Mr. J. A. Peehl, lays down the proposition that:—"It is but natural that the painter should be called upon to finish the woodwork in such a way as to correspond with the cement used in construction. The cornices, balconies, and carniages must be made to look as if made of cement." The writer then proceeds to instruct his readers on how to do it, which is to coat the woodwork with two good coats of oil and then sand it, and after sanding, give it a coat of water-paint.

The writer makes a false step, says the *Journal of Decorative Art* (and we, of the Journal agree), when he lays down the proposition that the painter is called upon to imitate cement on his woodwork. Surely the woodwork in its lines and construction has a character of its own which entitles it to be finished as wood, and not as stone. Cement construction has come to stay the world over, and it has its own characteristic lines, which all good architects are designing in their buildings; but they have to use copper, iron, wood, cements or sashes, iron or wood doors, and where they are wise they will retain the individuality and character of each, and so add to the beauty of their building.

Imitation seems innate in the human mind, and there are many places where its employment is justified; but to make wood doors, doorposts, sashes, and window-appears like stone is unreasonable because it violates one's sense of what is right. We know they are not stone, however they are painted, nor could they be. You could not conveniently have a stone door and stone window-frames. You can have stone mullions, we know; but

they usually have metal or wood frames to them. In all these things regard must be had to what is rational and reasonable.

It is a sound canon of taste not to paint stone; but there are situations where this is justifiable. One of these is the well-known Northern watering-place of Blackpool, and the justification is the terrible winds which have on the front there, which drives the sand from the sea-shore with such force on to the stone dressings to the houses as to fret them like a sandblast machine, which in reality is on a large scale. The effect of painting the stone here and sanding it is to give a perfect protection against the effects of the sand-storms.

ART MUSEUMS AND PICTURE GALLERIES.*

By EDWIN T. HALL, F.R.I.B.A.

Let us consider the main lines and general principles on which an art museum should be designed. First of all, its entrances and exits. There are often priceless works of art in such a building, and as there are thieves in the world, it is not desirable to have more than one door (or group of adjacent doors) both for the ingress and egress of people in normal circumstances, so that all may be under observation by the same attendants. Fire escape exits in a large building may be necessary, but these should be safeguarded. The common ingress and egress facilitates the placing of cloakrooms. A spacious vestibule or hall will, of course, be necessary, and should be consistent with the dignity of the place. Assuming a large building on more than one floor, the main staircase should be conveniently near the entrance. Of course, there should be other staircases in different parts. In a relatively small building a very usual plan is a rectangle with a central court, the staircase being in the centre or at the entrance. The administration offices should, again, be near the entrance, and far from those who have merely business relations with the museum, so that these may not interfere with the visitors. The general disposition of departments demands attention. Top-lighted galleries may be placed in internal courts, with rooms around them, or they may be on the top floor. The latter position is, I think, preferable for many reasons, one of which is that if the central gallery has a roof at the height of the surrounding building this will be quite unsuitable for anything but sculpture or architecture, and if the roof be kept down the shadow from adjacent buildings will be objectionable. Another important feature is to form alcoves in the gallery, so that statues or groups may be isolated and attention concentrated. The advantage of this is seen in the cabinets of the octagon cortile of the Belvedere, in the loggia of the Villa Albani, and I note that this is a feature of the Welsh National Museum. Of course, in considering sculpture galleries, regard must be had to the ready accessibility for heavy masses to be brought in from outside, and a basement road access is necessary for cars. While on this subject of displaying originals and copies. It is not uncommon to find both in the same gallery, but this arrangement is challenged by experts. We now come to the general disposition of other galleries in a museum. What is to be the principle on which they are to be laid out? Are galleries for all the different exhibits on a floor, or in one range, or to be open into one another, so that a visitor shall pass through all and make a circular tour back to his starting-place? Are galleries to be in groups, so that each group shall take one branch of art and illustrate it through all time? Should art work of all kinds of each period or era be illustrated together in the same room or gallery? Or should the convenience of administration and supervision only, the one continuous range is better. Large numbers of people are passing in only one direction, and do not interfere with those following them. On the other hand, if a visitor wants to contemplate one period of art—he is painting or any other manifestation—

* Abstract of a paper discussed at the Ordinary meeting of the Institution of Civil Engineers on Tuesday, April 2, 1912.

* Read before the Royal Institute of British Architects, Monday, April 1, 1912.

he has to make the other rooms mere passage-rooms, and this, further, is disturbing to the art students in those other rooms. In small museums or galleries the question settles itself. The floor area is limited and the galleries on any one floor become a manageable unit which, if well arranged, meets with general acceptance. The general principles of the scheme having been considered, we come to the ordinary galleries. As far as I can gather, the general feeling in respect of all except picture galleries is that side-lighted rooms are best. The subject of the galleries for picture galleries is a matter which much has been written. Top-lighted picture galleries in museums should not be more than 30 ft. wide. The very few extra large pictures demanding greater distance for observation can be placed at the ends of galleries. Any greater width makes the height too much. The walls are not required to be high. One row of pictures is best for their proper appreciation, but two rows are admirable when they are not too large, so that a height from the floor of 15 ft. to 18 ft. is ample. At the new Birmingham galleries 15 ft. 6 in. has been adopted. Attempts have been made to lay down laws as to the relative area of skylight to floor, but these are of general application, as the light varies in different latitudes, and, moreover, the light in an English city, with its pollution by coal smoke, is much less than in France or Italy. As to the colour of walls, there is a great difference of opinion. Nearly all agree that the background for pictures should be dark. At the National Portrait Gallery in London the latest decoration to the second floor range of galleries has been black. This may be good for pictures, but the conspicuous black remains on the ceiling of the eye and is oppressive. I think it may be safely said that a background is successful in inverse proportion to its obtrusiveness. Many artists favour red; but probably the colour scheme of every room in any permanent gallery can only be settled by adapting it to the pictures which are to be hung. As to material, silk tapestry, plush, velvet are beautiful, and they absorb light, but are too expensive for general use. Lacquered or painted paper and canvas are frequently used, but dove canvas and plain, unvarnished paint are also used. No picture galleries should be decorated with anything but their pictures. Severe enrichment surrounds the panels for architectural ornaments, heavy gilding, and architectural sculpture. Panels for pictures are out of place, and distract the eye from the paintings. An important feature of a museum is the reserve galleries. They should be adjacent to the other galleries, to facilitate ready exchange of objects. There is another advantage in this plan, its elasticity. Another matter of interest is that there should be students' research and copying rooms off each department, where students may be quiet. Each department should have for its keeper a room, well lighted and quiet, and convenient of access for visitors and students. The children's room as part of a museum equipment is a modern adjunct, and it should be near the entrance. Last of all the public rooms is a lecture hall. These should be so arranged that, while it is accessible to the museum, it may be separately entered from the outside, so that it may be used when the museum is closed. It requires its separate cloakrooms, lavatories, exits, etc. Its form depends on circumstances. It is hardly necessary to deal with the remaining working departments, and as it is we have travelled over a wide field.

KEYSTONES OF BUILDING.*

The purpose of this book is benevolent. There is really not much about building in it, the idea being that the architect should arm himself with it and lend or give it to his client at the outset, so that the latter may find out all that is going to happen when he starts building.

Whether it is a wise present to tell possible clients—who are not legion just at the moment—as they start we hesitate to say, or what they will think in Conduit-street of

this sort of advice as to the choice of an architect!

THOMAS FRIDGING.

The position of E. in search of an architect is rather a difficult one. We may suppose that he is unfamiliar with the subject and is quite conscious of the fact, but is equally aware that by the time he has found building he will have acquired a good deal of knowledge, and will be disappointed if he then finds that he has employed one of the wrong sort.

He calls in the man whose name he most often hears mentioned, he is in danger of securing one who deals more in quantity than quality. If, on the other hand, he selects the most effective work on hand building he will have secured a good address in the corner of the drawing, and acts on that, he will possibly find that the quality of the drawing which attracted him were due to a hired hand, and were never an index to the powers of the man he has chosen. He may pick up a laudatory article in some periodical and be impressed by it, in sublime misapprehension of a possible inspired origin. Alas! as I think for our profession, the pitfalls laid to catch him are many and subtle; it is a lucky chance when the thimble covers the pea. The letters F.R.I.B.A. will be no reliable guide for years to come, as there are still many members of the old régime who were surveyors in ideals and practice, and architects only on paper. E. can, however, use his own personal judgment of a man when he sees him, and if he does so, the work of the architect will be it will inevitably be a reflection of its author in every detail.

We may explain that "E." is the Employer, of course. It doubtless saves space, even if several capital letters throughout the page rather perplexingly to docket the parties as A., Q.S., B., C.W., and E., and imparts the charm of apparent impersonality. Anyhow, having got him his A., and induced E. to launch out on a model new building in the country at a proposed expenditure of £5,000, Mr. Thomas tells them how to arrange an agreement based on the basis of a rough estimate. In his opinion, "it is rendered unnecessarily confusing by the inclusion of many clauses that do not refer to architects at all." That done—with the help of a lawyer, we suggest—they get, of course, to sketch designs: "Discussion Drawings" Mr. Thomas likes to call them, and A. produces a rough estimate which "can give an approximation." If all goes right, everything is satisfactory, of course, and the rest is routine. "It does not always as another E. finds out in a chapter entitled "Deep Going." This particular E., who read A.'s letters, "prepped against a whisky and soda," said to himself with the cheery optimism of the trustful client: "If that little lot can't be done for £5,000, what can it do when he woke up to the fact that the book had exceeded its goal." "He no longer looks upon A. as the dove, but inclines to view him as a wolf in sheep's clothing." Candour of this sort can never fail to bring you clients, young architects; whether as you grow older you will still keep copies of Mr. Thomas's book on hand for their enlightenment we are not sure. Let us hope so, for his benefit, and the credit of human nature.

Elsewhere in the book there is no lack of matter clients ought to master. The chapter on the lay-out of the surroundings of the buildings is good, as one might expect from the book on "The Formal Garden," which the author and Mr. Blomfield wrote in 1892. So are those on "Common Sense" and "Sensible." No hesitation as to the expediency of circulating it among clients hinders us from advising all architects to buy and read it. It may help some to endure the coming holidays, more or less blissfully dreaming of generous clients enlightened by Mr. Inigo Jones to a due sense of their responsibilities, not forgetting to ponder his closing words:

It is not unusual to hear an architect described as being a very expensive man, which is a doubtful meaning that deserves a word of comment. It was pointed out in the third chapter that the system of charges is concerned, they are all practically equal, but the remark would lead a careless listener to think it was otherwise, and in this way it is detrimental to the person referred to. It is true, of course, that a man will have larger ideas than another, or may prefer the use of comparatively expensive materials; but the latter is hardly to be regarded as one of these things is ever incurred without the employer's authority!

No less often has one heard it said of some particular building that E. was his own architect.

Just what is meant I really don't know, for there are probably few lauded people who would give time enough to carry through the operations that I have described as the work of A., even to the standard of an amateur; and A.'s work in the making of drawings, which means by far the greater part, I have said altogether unreservedly, as it hardly admits of description. At the same time, it is in this matter far excellence that he proves himself an architect, for here only can he deal with the qualities that are purely architectural. Of these, perhaps, the most important is scale, which, like tone in painting, is matter more capable of demonstration by an expert than of treatment in print. In short, it is only the business side of architecture, and not the craft, that can be brought within the cover of a book.

The truth of the last three lines, at any rate, is beyond controversy!

COMPETITIONS.

THE AUSTRALIAN FEDERAL CAPITAL COMPETITION.—Over one hundred designs for the laying out of the site for the Federal capital have been received by the Minister for Home Affairs from all parts of the world. Most of the designs are submitted by foreigners, and a further batch from Sweden is reported. The Minister therefore extended the date for receiving the designs until the middle of February. The original intention was to appoint three Government servants to constitute the Board, whose duty was merely to report on the designs, whilst the Minister himself was to make the awards. The Minister, however, has altered his tactics, and now seeks to obtain a board from outside sources. The "architect" he has not been able to secure. He wrote to the Institute of Architects in New South Wales, asking that body to nominate the "architect" of the board, but in vain. Yet, after he had received his rebuff from Sydney he implied by a statement in the Press that the Institute would make the appointment. The hon. secretary of the R.V.I.A., however, exposed the trick by giving publicity to a copy of the New South Wales Institute's refusal in the daily Press. Needless to say, the fact that A. has not been asked to nominate the architect member of the board. The Victorian Institute of Engineers is represented on the board by Mr. J. A. Smith, the president, and the Surveyors' Institute by Mr. J. M. Coane. Until the board is constituted, nothing is likely to be done with the design, nor is the possibility of the board likely to be made public at an early date. The latest intimation that Mr. John Kirkpatrick has been selected by the minister, owing to the refusal of the Institute of Architects of New South Wales to nominate the architectural member of the board. Each of the three members of the board is to receive an honorarium of £100. One hundred and twenty-eight designs have been received.

WEIR CHARITY HOSPITAL.—The trustees of the Weir Charity, entrusted with the building of a hospital for the benefit of the inhabitants of Streatham and the neighbourhood, have selected, from the designs submitted in competition, that of Mr. R. J. Thomon, F.R.I.B.A., of 49, Hill-road, Wimbledon. The scheme has been approved by the Charity Commissioners, and the work is to be proceeded with forthwith.

The second "smoker" of the session of the Society of Architects will be held at 28, Bedford-square, on Friday, April 19, at 8 p.m. The hon. secretary, Mr. C. H. Hudson, will be glad to receive the names of any members or students who are prepared to take part in the entertainment.

The directors of Alfred Goslett and Co., Ltd., have declared a dividend of 8s. per cent. on the ordinary and cumulative preference shares, after all deductions for depreciation, bad debts, directors' fees, bonus to managing directors and employees, and other charges, leaving a net profit of 19 per cent. of the net profit to reserve. This compares with 9 per cent. for 1910.

At the monthly meeting of the Taunton Borough Education Committee on Monday, the clerk reported that the council had approved the amended tender of Messrs. G. Pollard and Co. of Taunton, for building the new Priory Council School, the amount being £3,157 17s., and the committee appointed Mr. G. Parry as clerk of the works during the erection of the school at a salary of £3 a week.

* *Keystones of Building*, by F. INIGO THOMAS, London: John Lane, Vero-street, 7, G.I.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.—The following letter has been addressed to the members of the Birmingham Education Committee by Mr. E. Marston Rudland, secretary of the Birmingham Architectural Association.

"Dear Sir,—The attention of my council has been called to report in the *Daily Post* of the proceedings of the education committee. It would appear from the report that the education committee proposes to entrust the building and alterations of schools in the old and newly-added areas to their official architect. My council consider that this is a deprivation of work to the practising architects in the city who have formerly had a share, and is a violation of the general statement made that the creation of Greater Birmingham should not result in injustice to any section of the community. At a meeting of the general purposes committee, at which a deputation of the Birmingham Architectural Association was received, it was estimated that the cost would be more than twice as much as if the work were employed than if the work was done by an official. Further, it is a question whether work executed by different architects is not more suitable to meet the changing conditions than work produced by one official, however capable. If, however, the education committee prefer to retain the services of a permanent official, my council consider that the area being so much extended will require the whole time of one man efficiently to design and superintend all the work in the alterations and new buildings required, and if he is allowed to continue private practice as well, the work will suffer, and one member of the profession will be subsidised at the expense of the remainder. Is it a fact that more than two complete full-sized schools will probably be erected in any one year? Trusting that you will give your support to the contention of the architects generally, both on the education committee and on the council. CHAS. E. PATEMAN, President, Birmingham Architectural Association."

EDINBURGH ARCHITECTURAL ASSOCIATION.—A view of the interior, with an investigation of the under-building, of the new Usher Hall was afforded on Saturday to the members of the Edinburgh Architectural Association. The visitors had the advantage of explanations by Mr. John Darge, the clerk of works, who was accompanied by Mr. William McLeod, representing the contractors, and the representative of the company who are carrying out the reinforced concrete work. A visit was first paid to the under-building. Attention was drawn to the duct, 9 ft. wide, running round the building, by which the vitiated air is led to the ejection point. It was explained that the hall was almost entirely built on rock foundation. The borer that were put down had proved to be misleading in some places. The builders were supposed not to find rock for 14 ft., but they had got to rock 3 ft., or 4 ft., below the surface. On a previous visit by the Geological Survey, Mr. Macdonald stated they had informed the visitors that they believed the rock to be an upthrow of the Granton rock; and they also believed that the site was very near to the mouth of the crater from which the Castle Rock had been flung. With regard to the drainage, they had from the low level driven through the rock, and connected with King's Stables Road. The organ-space is located next to the boiler-house, the tall chimney of which has been erected; and the location of the fresh-air inlet for the organ will afford an automatic means of warming the air, which is also provided for by coils placed in the pipe. Ascent to a higher level, the visitors were shown the large corridor running right round the building, and points in the cantilever system adopted for the grand tier and upper galleries were explained. The dome has a diameter of 122 ft. The grand tier cantilevers have an overhang of 20 ft. 7 in. Between the ceiling under the grand tier and the floor above there is left a space of 4 ft. to form the air-extraction ducts. In the

treatment of the doorways moulded bronze is to be employed, with panels of polished Ailsa Craig granite. On ascending the staircase leading to the grand tier, it was stated that the walls will be faced with Roman stone or Trieste marble, with Siena panels. The steel rods imbedded in the concrete, it was stated, were all tested at a pressure of from 30 to 32 tons per square inch. The dome will spring from a line 30 ft. above the cornice line of the wall as it is at present seen. The clerk of works stated he had no doubt about the good acoustics of the hall. At the conclusion of the visit, Mr. Maidman, on behalf of the architectural association, moved a vote of thanks to Mr. Darge for attending and giving them the detailed explanations they had received.

NEWCASTLE UPON-TYNE AND DISTRICT CLERK OF WORKS AND BUILDERS' FOREMEN ASSOCIATION

A lecture on "Marble" was given to the members of the above association by Mr. G. Bennison, of the London Art Pavements and Decorations, Ltd. It was shown how we are indebted to marble for a great deal of our historical records, and that in art and in the work of our great sculptors are immortalised. The ruins of the ancient Grecian were principally built in the marble of Mount Pentelcus. These quarries, being lost to us for centuries, have of recent years been rediscovered, and are now being extensively worked by a large company with British capital. The marble of these quarries now known as Pentelcus marble, is being extensively used. In London many large buildings have been faced with this material, and from the short time in which they have been erected the marble seems to stand our atmosphere well. After having explained the formation of marbles from the geological theories, a few words were said upon the chemical composition, and it was explained how the chemical action of the acids in the marbles their beautiful colouring and markings. Coloured slides were next shown of various marbles representative of the various classes of these marks as known to the commercial man, viz.:—Sacharoidal, variegated, fossiliferous, brecciated, laminated, uncoloured, crinoidal, travertines, and serpentine. The working of the quarries were then explained, both as carried out on the Continent and America, and the various methods of extraction of the rocks from the quarries was carefully explained, viz.:—Drill, pile and feather, channelling, and wire helicoidal-saw. A lengthy explanation, with the aid of photographs and diagrams, of the working and exploitation of the wire saw followed. Photographs of the waste of the old methods of quarrying—viz., blasting, etc.—now greatly impeding the present day workings. From the quarry to the works was the next step, and it was shown how the blocks were sawn, moulded, and cut principally by the use of carbide-burned cutting-wheels, followed by a clear explanation of the various stages of polishing by machinery. Photographs of many beautiful works executed by the Art Pavements and Decorations, Ltd., London, were then shown, which concluded the paper.

ROYAL SOCIETY OF ANTIQUARIES OF IRELAND.—On Tuesday week, at the monthly meeting, two papers were read, one on "The Origin of Irish Romanesque Architecture," by Mr. Charles McNeill. Mr. McNeill insisted that there was a considerable connection between the Romanesque of Ireland and of Ireland; that another, a paper, "Carvings at the Rock of Cashel," was by Mr. P. J. Lynch.

An extensive scheme for the restoration and improvement of Cowfold Parish Church, which is now in contemplation, is to include a new altar table and reredos and new chancel window, and application is being made to the Consistory Court of York for a faculty.

The death is announced, at the advanced age of 82, of a Boscombe, Bournemouth, of Mr. John Omer Cooper, in his day a well-known auctioneer and surveyor at Reading, where he was head of the firm of Messrs. J. Omer Cooper and Son, from which he retired some sixteen years ago.

Building Intelligence.

ALDERSHOT.—Steady progress is being made with the new Catholic Church of St. Joseph at Aldershot, and the foundation-stone was laid on March 10. A limited competition was arranged, the architects engaging in which were given fixed times to work on. The style was to be Romanesque, the material clay in some shape or form, brick, tile, or terracotta. Plaster was to be avoided; the colour effect inside and out was to be dependent upon that of the materials used, so as to be permanent, and not standing in need of renewal every few years. An apsidal treatment of the east end was suggested, and the sloping nature of the ground, falling away to the east, showed that the sacristy would, with economy of space, fittingly find a place under the sanctuary, which would be well raised above the nave level. A chapel of Our Lady, which was to be as large as possible, so as to serve for the week-day services, was to be provided, together with a Chapel of the Holy Souls, which could accommodate the memorial character of the building. On these lines several designs were prepared, and finally that of Mr. George Drysdale, a former pupil of Mr. Leonard Stokes, through whom it was submitted, was adopted. His solution of the problem differed from that of all other architects in his having adopted an axial treatment of the site, with the nave on the two sides of the church to be practically symmetrical, solved the difficulty of a single roof, arranged for the two chapels by the provision at the east end of what is essentially a narthex with apsidal ends, in which the altars will be placed. This narthex is raised two steps above the nave level, cut off from the nave, but giving through the separating arches an excellent view of the high altar. It will be seated with chairs, which on week-days will face the side altars, and on Sundays will be turned to face the High Altar. Above is a gallery which, if so desired, may be used for organ and choir. The style is based on that to be found in North Italian churches of the 9th, 10th, and 11th centuries.

BRISTOL.—At the meeting of the Bristol Guardians last Friday the tenders were considered for the conversion of Southmead Workhouse into an infirmary for acute cases, indoor poor, under the scheme for the improvement of the classification and accommodation for the indoor poor approved by the guardians on June 16, 1911. The tenders were opened and announced as follows:—Contract No. 1, builders' work—£35,950, £36,614, £37,972, £38,888, £39,000, £39,500, £39,700, £40,870. Contract No. 2, boilers, economisers, steam-pipes, pumps, heating apparatus, hot and cold water mains and cisterns, hydrants, kitchen fittings, etc.—£5,783, £6,287, £6,360, £6,565, £6,610, £6,607. Contract No. 3, electric lighting generating plant—£1,347, £1,387, £1,404, £1,421, £1,429 2s. 10d., £1,576, £1,592 4s., £1,605, £1,686 10s., £1,744 10s., £1,780, £1,795 10s., £1,854. Contract No. 4, electric light, wiring, and fittings—£897, £939 5s., £1,069 10s., £1,129, £1,150, £1,192 10s., £1,290, £1,217 14s., £1,300, £1,440 10s., £1,478, £1,683, £1,772. Contract No. 5, laundry machinery, motors, and appliances—£625 5s., £640 14s., £714 10s., £741 8s., £771, £800 15s., £801 10s., £809 10s., £843 2s. 6d., £858 15s., £880 16s., £919, £1,081 15s. A long and somewhat discursive discussion followed, in which it was stated that another, a clergyman, "would have stopped the building of Solomon's Temple on the ground of expense." Ultimately it was resolved to accept the lowest tenders provisionally and to nominate a committee. It was suggested that the names of the firms tendering should be made known; but it was decided to let the clerk, Mr. J. J. Simpson, stating that no one but himself knew the names.

HEBBURN. There has just been completed a new block of offices for Messrs. Hawthorn, Leslie and Co., Ltd., Hebburn, designed as a continuation of the existing offices, and the present main entrance gives access to both. In the basement of the new

building strong rooms are provided for the drawing books, etc., and there are also rooms for Government and mercantile inspectors. On the first floor, at the same level as the existing board and directors' rooms, are placed the chief drawing offices in departments, with office accommodation for the departmental heads. On the floor above are placed the offices and private works department drawing office, private telephone exchange, and ladies' lunch room. Above the second floor, with access from the main staircase, a photographic department has been provided. The walls are of brick and the floors and roof of concrete, reinforced with metal. The whole of the steelwork has been encased with concrete. The whole of the work has been executed to the designs and under the superintendence of Messrs. Boyd and Groves, architects, Emerson Chambers, Newcastle, and the total cost is about £3,600.

ROCHDALE.—At last week's meeting of the Rochdale Corporation general purposes committee, the subject of the link proposed on the proposed new just office for Rochdale. Several draft sets of plans have been submitted to the corporation for their observations, and an entirely new set of drawings are being prepared, providing for a building of a different type, less expensive, more roomy, and more in keeping with the premises in the neighbourhood of the town centre. These fresh plans are expected to be ready in about a fortnight.

PARLIAMENTARY NOTES.

STATUES IN WESTMINSTER HALL.—Mr. R. McNeil, on Thursday evening, the last member for St. George's in the East, representing the First Commissioner of Works, whether it was the intention of the Government to continue the series of statues of British Sovereigns in Westminster Hall by erecting statues of their late Majesties Queen Victoria and King Edward VII. Mr. W. Benn: No, sir, the Government has no such intention.

REBUILDING REGENT-STREET QUADRANT.—Attention was drawn to the dissatisfaction which many Regent-street traders have felt for a long time in regard to the proposed rebuilding of the Quadrant by a question put by Mr. John Huns, M.P., in Parliament on Tuesday. He asked: "Whether His Majesty's Commissioners of Woods and Forests propose to adhere to the plans for rebuilding the Quadrant in Piccadilly, in face of the objections put forward by practically the whole of the existing leaseholders, on the ground that such premises already erected in accordance with such plans are found to be utterly unsuitable for trading purposes?" Mr. Masterman replied that the matter was receiving careful consideration. The traders of the whole of Regent-street have held numerous meetings, and the great majority of them have protested against the scheme being forced upon them. If it be carried out, they say, and if the Quadrant is rebuilt on the Piccadilly Hotel plans, Regent-street will become a gloomy and uninteresting thoroughfare, of which London has too many, instead of the cheerful shopping centre it now is. The traders state that the situation is so serious that they are faced by two alternatives: either to resist what they are and find their business decreased owing to inconvenient premises, or to remove elsewhere. They express the hope that the Commissioners of Woods and Forests will change their attitude towards the matter, and in answer to the wishes of the traders in Regent-street, to whom the question is of vital importance.

STATUES, MEMORIALS, &c.

PRINCETOWN, CHURCHYARD. Through the energy of Mr. S. Bensley, of Tintagel, a memorial of an appropriate character is now being raised by Messrs. Harry Hems and Sons, of Exeter, in the churchyard here. It will consist of a huge cross of the finest granite, which will be quarried within a few miles from Princetown. Upon octagonal steps, the Latin cross itself will consist of a monolith, the whole being some 12 ft. high. The sculptor proposes to have this interesting work placed in position in July.

THE QUADRIGA ON CONSTITUTION-HILL. The King and Queen inaugurated on Tuesday the Quadriga, which is being erected over the arch at the foot of Constitution Hill. We have previously fully described the work. Capt. Adrian Jones (the sculptor), Mr. Burton (founder), and Mr. George Reaveel (Surveyor of Royal Palace) had the honour of being presented to the King and Queen.

Correspondence.

WANTED, A LEGAL DEFENCE ASSOCIATION.

To the Editor of the BUILDING NEWS.

SIR, A case recorded in your last issue will remind architects and surveyors of the increasing frequency with which actions are being brought against members of these professions for negligence. Without going into any question of the justice of the decisions given in any particular instances, some favourable, some unfavourable, to the defendants, it seems desirable to emphasise one important point important, really, in the interests of justice, which, presumably, both sides desire.

This is, that having regard to the very complicated and highly technical character of the necessary evidence, an association, or committee, should be formed, which, although taking no share in the liability of its members, could advise in the selection of experts, whether as to points of law, the nature of materials, the simplification of evidence, the interpretation of contracts, the value of guarantees, the liability of building owners, and all the puzzling and hitherto rather confusing issues that are usually involved.

A small annual subscription, which would be no tax upon those interested in building, whether as owners, as architects, as contractors, as clerks of works, and in other ways, would (or should) be, in the aggregate, sufficient to maintain a really valuable organisation. At present it would really seem that in case of such proceedings, to toss the proverbial hapenny, and accept the result, would usually save expense and anxiety. One illustrative instance may be recalled, in which a building owner, beaten at first, took his case to the Court of Appeal, and was again beaten, and, finally, before the House of Lords, gained his case by a majority of only one—1 nm, etc.

JUSTICIA.

[Has our correspondent not seen, or forgotten, the previous correspondence on this subject, and our own comments thereon, in our issues of June 2, 9, and 30 last year?

The practical steps to form such an organisation were then pointed out, and a well-known London solicitor, who has advised us for many years, indicated the best lines of action. But nothing more came of it. We still believe that, well advised by a good lawyer really conversant with building matters, "An Architects' Protection Committee" might do good service. We would help ourselves, from time to time, as far as space would permit, to record its action and promulgate its warnings.—Ed. "B.N."]

Mr. A. H. Swanson, borough surveyor and sanitary inspector, Immingham, has been appointed to the borough surveyorship of Louth.

The Rawtenstall (Lancs) borough surveyor has been instructed to prepare plans and an estimate of the cost for the proposed extension and heating of the Central Market Hall.

The Middlesex County Council, at its meeting last week, instructed its Asylums Committee to take steps to provide suitable sites for an asylum, preferably in Middlessex, for the future needs of the county.

Mr. Harry Davenport, of the surveyor's office, Prestwich, has been appointed surveyor assistant in the city surveyor's office, Manchester, at a salary commencing at £100 a year. Mr. Davenport was article to Mr. Sedgwick Morgan, A.M.I.C.E., the engineer and surveyor to the Prestwich Urban District Council, and on the completion of his article on January 1 last, was appointed special town-planning assistant.

Sir John Baddeley, the Alderman-Elect of Farringdon Within, ranks as the archaeologist of the City. To him, so says the *City Press*, "we owe the exposure of the great mass of all of the heresy as to the weapon in the coat-of-arms representing the dagger with which Sir William Walworth slew Wat Tyler—a heresy that through history had secured general acceptance." Sir Paul, the Patron Saint of London, is now, so to speak, come once again into his own."

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and who send each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesday.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any answer that may be deemed useful.

We award the guinea to Mr. Frank Wilson, 225, Nottingham-street, Sheffield. Another reply of his, and perhaps one or two more, stand over, which we may insert next week, and will add their players to the list of prizes for this issue, having to go to press a day earlier. There are no queries worth inserting this week, so readers may enjoy their holidays in peace.

REPLIES.

13307.—COTTAGE.—The answer to the first part of this query (assuming that the materials used are the best of their kind, and that the construction kept in its correct position, and proper supervision) is, Yes. Second: The following must be used: 1. The raft, thickness of raft, not being necessary, and only adding weight, which is best avoided. The foundation should be kept as near the top as possible, the vegetable spit only being removed (assuming the site is level). The whole site of the building should be covered with a raft of 12 in. of concrete, 4 in. thick, beyond the walls, and 7 in. thick under same, for a weight sufficient to even a 12 in. projection beyond chimney-breasts. If space occurs, the raft should be 4 in. thick. Wherever the chimney-breasts occur, the thick concrete must be continued under same. The raft should consist of 12 in. of concrete, 4 in. thick, apart both ways, and bent up at an angle of 45 deg. where they emerge from the 7 in. to 4 in. concrete. These rods must be bent in the concrete, and the thick and the upper half of the thin concrete (this being necessitated by the reversal of the stresses), and must be in as long lengths as may be obtained, and must be 12 in. to 1 1/2 in. long. Having used the above method satisfactorily, "Cottages" may be erected on 12 in. of concrete, 4 in. thick, and 7 in. of P.C. concrete over the site of a building, and as this is incorporated in the raft, with the addition of reinforcement, the raft will be strong enough. J. W. Thompson, Woodville-terrace, Lytham.

13307.—COTTAGE.—A two-storied cottage is to be constructed on a site which was made up, a century ago, upon a soft or swampy substratum. A.Jax should sink, at least 2 ft. below the surface, and, protecting them from the rain, should watch for water draining from the site, in order that he may form some opinion of the state of things now existing. At the same time, he should arrange a known weight to be fixed upon a given surface of the land on the site of the cottage foundations, and he should weigh the same, say, per sq. ft., by 2 ft. 6 in. (equals 10 sq. ft.), and finish the pier off with a stone flag. When the mortar has set—say in about a week—the time the weight is to be taken. In two or three months, again take levels, and any difference between the two figures will show the amount of settlement. The building should be constructed so that all buildings, built even on virgin soil, sink to some extent; but so long as the sink or settlement is not too great, it does not matter. The reason why ground floors are arranged about 1 1/2 in. above finished levels, in order that the building may settle evenly, takes the form of a series of trenches under the floors. Form trenches under lines of walls (in this case) at 9 in. wide and 3 in. deep under all 9 in. walls. Cover the whole surface of the walls, the intermediate section reinforced with expanded metal, strong section. The trenches will thus give 12 in. of concrete under walls, and a 3 in. thick concrete floor, 12 in. deep, under the walls. The building therefore will require the whole site covering with at least 6 in. of concrete when the nature of the substratum is discovered.—Frank Wilson, 225, Nottingham-street, Sheffield.

13307.—COTTAGE.—I have a somewhat similar case at present. A new private school building is to be erected on a swampy site with the water table below the surface of the ground 3 ft. or 4 ft. Below several schemes, the following has been decided

the summons was taken out, which only the defendant considered was adequate, and the plaintiff was not allowed to sue in the district. The plaintiff was not allowed to sue in the district. The plaintiff was not allowed to sue in the district.

RIGHTS OF NEGLIGENCE—JACKSON V. LLOYD AND CHAPPELL.—This was an appeal from a judgment of the Lord Justice Vaughan Williams, Farwell, and Kennedy by the London County Council and a contractor named Chappel, in an action brought by Thomas Jackson, who had about 14 years of age, to recover damages for personal injuries suffered, he alleged, owing to the negligence of the defendant Council or its servants. Mr. Rowland K. C., in support of the appeal, said that his client, the defendant Jackson, who was a school-attendant at the Mansion House, County Council School No. 40, the defendant Council, was the owner of the premises in which the plaintiff was injured. The plaintiff was injured by a fall from a high platform. The plaintiff was injured by a fall from a high platform. The plaintiff was injured by a fall from a high platform.

RIGHT OF LOCAL AUTHORITY TO EXEMPT FOR PAYMENT. Rule Against Newcastle Corporation. In a Divisional Court of the King's Bench, on Tuesday, Mr. Randolph A. Glen applied on behalf of Mr. John White, funeral-furnisher of Chillingham-road, Heaton, Newcastle, for a rule nisi for a mandamus directing the Newcastle-on-Tyne Corporation to hear and determine Mr. White's application for exemption from the payment of a burial fee under the Public Health (Buildings and Streets) Act of 1888. The short point was whether a local authority had any right to sell that consent. Mr. White had two glass shrouds, and he proposed to fill up the gap between them and extend the front. The court might not be an infringement of an Act. His application was for a mandamus directing the local authority to hear and determine Mr. White's application for their consent. Counsel said his contention was that the application had not been properly heard and determined. The local authority wanted his client to give up a piece of land he possessed that was not dedicated to the public use. The court granted a writ of mandamus directing the Newcastle Corporation to hear and determine the application according to law.

FEES UNDER THE LONDON BUILDING ACT. An interesting point of law as to whether a lease of premises is an "improvement" within the meaning of the "dangerous structures" part of the London Building Act, 1891, came before the Lord Mayor at the Mansion House on Friday last. The Corporation of London claimed from Mr. Samuel Seal, of 7, Sergeant's Inn, Fleet-street, payment of £1 18s. 6d., being the amount of expenses incurred by the Corporation in respect of a dangerous structure, a chimney at No. 7, Sergeant's Inn, Fleet-street, which was the owner. The sum claimed related to

£1 12s. 6d., the district surveyor's fees under the London Building Act, and 6s. 6d. statutory fees payable to the Corporation. Mr. Seal contested the claim on the ground that he was not the owner, and therefore not liable to pay the same. Mr. Seal was represented by Mr. Alfred G. Hardy appeared for Mr. Seal. Mr. Seal is the lessee of No. 7, Sergeant's Inn, Fleet-street, under a lease from the Curates' Augmentation Fund, Dean of Newcastle, for 21 years, commencing March 25, 1909. The lease contained a covenant on the part of the lessee to pay all rates and taxes, and there was also the usual covenant as to repairs. The main question was whether the chimney was the property of the owner under the London Building Act. Sub-section 2 of Section 5 of the Act is as follows: "The expression 'owner' shall apply to every person in possession or receipt of either of the whole or any part of the premises, or any part or parts thereof, or in the enjoyment of any part or parts thereof, or in the enjoyment of any part or parts thereof, or in the enjoyment of any part or parts thereof." The Lord Mayor could not come to any other conclusion but that Mr. Seal was the owner within the meaning of the Act. Two points were raised in the case. The first, if Mr. Seal, the first, being that it was not the owner within the meaning of the Act, and the second that the chimney was on the western wall of the premises, which wall, under the terms of the repairing covenant, Mr. Seal, the first, was to repair. Mr. M. L. Samuels, the district surveyor, said the defect was in the southern wall. The work required was subsequently done, but he could not say by whom. Mr. Brock, the clerk to the trustees of the Curates' Augmentation Fund, produced the counterpart of the lease from them to Mr. Seal. He believed they were liable for some repairs. He did not admit that they were liable for the dangerous structure. Mr. Hardy said his submission was that the chimney block was not on the south, but on the west wall. At present it was a matter of dispute as to who was liable. The dispute was between Mr. Seal, the first, and the Curates' Augmentation Fund—the freeholders of the premises. Immediately on receipt of the dangerous structure notice, his client forwarded it to the Curates' Augmentation Fund. They received the full rent from Mr. Seal, and he carried out the works. He contended that Mr. Seal was not the owner within the meaning of the Act, and that the Corporation should be liable for the works. Mr. Seal could have applied in the first instance for the fees to the freeholders, although they had the right to proceed against either. The Lord Mayor said that if they had the right to proceed against A or B, whichever they chose, it did not matter. Mr. Hardy said that the work was done by the Corporation, and the Corporation was not liable for the works. Mr. Seal was still under discussion. He submitted that the covenant for repairs did not apply to a special statutory claim of this nature. The fact that under the Act the usual repairing covenants did not throw upon him a liability to pay fees of this nature. The chief clerk (Mr. Douglas) said there was only one point, and that was whether Mr. Seal was the owner. Mr. Seal was not the owner. Mr. Hardy submitted that the owner was the person who was in receipt of the rents and profits of the premises. The Lord Mayor held that Mr. Seal was the owner within the meaning of the Act. The Corporation was entitled to the payment of the amount claimed—£1 18s. 6d., and one guinea costs.

The Irrigation works committee of the Canterbury City Council has recommended that a loan of £5,500 be applied for to provide bacterial filters and beds, plans for which have been prepared jointly by the City Surveyor, Mr. A. C. Turley, and the superintendent of the Irrigation works.

At a town's meeting at Sutton Coldfield, last week, the Mayor said it had originally been proposed to prepare a town planning scheme for 4,800 acres of the borough. The council had then decided to limit the scheme to the whole of the borough. The meeting adopted the scheme, with only four dissentients.

Our Office Table.

The third International Congress of Archaeology will take place in Rome from October 9 to 16, under the presidency of Commendatore Corrado Ricci, Director-General of Antiquities and Fine Arts. There will be twelve sections:—(1) Prehistoric Archaeology; (2) Oriental Archaeology; (3) Pre-Hellenic Archaeology; (4) Italian and Classical Art; (5) Greek and Roman Antiquities; (6) Greek and Roman Antiquities; (7) Epigraphy and the Study of Papyrus; (8) Numismatics; (9) Mythology and the Study of Religions; (10) Ancient Topography; (11) Christian Archaeology; and (12) Organisation of Archaeological Studies. Those who desire to read papers or to bring proposals before the congress are requested to communicate with the secretary general, Professor Lavinio Martinelli, via dei Condottieri, 10, or the Director-General of Antiquities e Belle Arti, 11, Piazza Venezia, Rome. It is hoped that it will be possible to keep the archaeological exhibition open until the period of the congress. Two special excursions will be organised in connection with the congress—one to Sardinia and the other to Magna Græcia and Sicily.

The Employers' Parliamentary Association has issued a manifesto setting forth the grounds on which it bases its demand for the speedy amendment of the Insurance Act. It is suggested that the incidence of taxation under the Act is unfair and unequal as between employers, and that it is still more unfair and unequal as between different classes of profit-earners who derive their revenue directly or indirectly from industries. "We claim," adds the manifesto, "that in many cases the insurance taxation imposed upon employers will be transferred to the price of commodities, which the consumer will have to pay. Even so, the employer cannot ultimately escape the tax, and will inevitably pay it, either directly in the first instance, or by increased wages involved by it.) The immediate effect will be to further increase the cost of production, and so handicap the nation, which is, more than any other, dependent for its employment upon foreign trade, and thus reduce the real value of wages. We say that this is unfair to the workpeople, who are the greatest consumers of manufactured goods and other necessities, and that it will cause further labour unrest. We have repeatedly placed these arguments before the Government and members of Parliament. They remain unavailing, and so far, our claim is just, and that it is imperative that it shall receive due consideration. We have operated so far strictly within constitutional limits, relying upon the justice of our case. As employers, we are most willing to pay our fair share of taxation for the benefit of the nation. We propose against being selected as an undesirable differentiation of taxation, as is the case under the Insurance Act."

A conference of medical men, sanitary reformers, and members of the Manchester branch of the Society of Chemical Industry, the Society of Dyers and Colourists, and other public men, was held at the Grand Hotel, Manchester, on Tuesday afternoon, to inaugurate a new crusade against the smoke nuisance. This new movement takes the form of presenting a memorial to the Lord Mayor and Corporation of Manchester, appealing for the formation of a new committee of the corporation, to be known as the "Air-Pollution Advisory Committee." It was suggested that this committee should be composed of the chairman or other specially appointed representatives of committees of the corporation, together with a number of co-opted societies, specially interested in the smoke nuisance. The memorial was adopted unanimously, and largely signed before the meeting ended.

In a letter to the Irish Daily Press, Mr. Albert E. Murray, President of the Royal

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Eppingham House,

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The Late Mr. Elijah Hoole, F.R.I.B.A.

Messrs. Catesby's Bungalow at the Ideal Home Exhibition.

Brick Ornament.

"THE DAILY ROUND—THE COMMON TASK."

All men hate sameness, and yet sameness is what every man, with very rare exceptions, wants to impose by force on every fellow-man. It does not get imposed, because every man wants a monotony of his own. John's pet monotony is of a sort that sickens Harry; and Harry's is of the sort that makes Alfred and Charles and Egbert sick or delirious if they only get a casual glimpse of it. If they could only agree, no doubt they would begin with A; but that is what they have never managed so far, and what, please the gods, they never will manage. For it is not on the same subject that they disagree. John wants to see the same politics imposed all round. He cares nothing about science, or art, or history, or morals. George has an ear for music, and never troubles about anything else. His idea of the future is that every barrel-organ, in every street shall start the same tune, to the same words, by the same composer; and when you ask him how he will make sure that some of his organs will not start a moment sooner, or a moment later, than another one, and so will be out of harmony with it all the way through, he answers that the difficulty is obvious enough, but will certainly be removed when all barrel-organs have been brought to work at the same time and the same set of words. George cycles; Egbert is rather of a missionary spirit; and he feels that if new converts were everywhere baptised at noon, their heads would everywhere dip below the surface of the fluid as the clock struck twelve, and would leave it long before another hour was signalled; and then wars and fightings for spiritual reasons would be for ever ended. But how can they be ended, he sadly asks, when no two of us cares about the same subject, and none of us can ever hope to convert a brother who, for the time, seems to be in the wrong? The first thing to do is to agree on the subject for agreement; and this, after ages of dispute, we have never done in the past. Shall we ever do it in the future?

The troubles of the John and Egbert brothers, multiplied by millions, and added to in ways which nobody would foresee, are the troubles of the world. Blessed troubles! for it is owing to them, or to things like them, that most of us are not in prison for the attempted murder of Mr. Gladstone, or the attempted assassination of Mr. Disraeli, or for attempts to destroy Socialism (of every branch save our own favourite one) by blowing up its followers into "air, into thin air." Our prisons, were it not so, would want instant enlargement; our bloodthirsty laws would

want instant re-enforcement. The popular cry would be, not for the abolition of capital punishment, but for making it universal. And when it was so made, it would not do all that was expected of it, nor even a thousandth part so much. "Nation shall not rise against nation," in the distant view of long-sighted "seers"; "neither shall they learn war any more." They learn it fast enough at present, it seems to most of us; and the time appears very near when they will learn little else. All men hate sameness, and the reason why it has not been imposed on everybody is simply that every imposer wants a different sort. Most of us in our hearts might agree to sweep away much of what is; but we want what never can be, which would be clear to most of us if we once began to fight about it.

It is not everyone who is a born fighter. Some of us are too lazy, and some too languid. We would let things take their own course for a while, and see what that course appears to be. If it turns out to be a very unparliamentary course, we might finally object to it; but not, of course, in unparliamentary language. How far this would affect the world we shall never know till we try; but probably very little. Perhaps the world, being insane, would shut us up in a large lunatic asylum, and do its own fighting in our absence. In course of time, it would have done it all, if "those who made the quarrels were the only ones to fight"; and the others would have died, or would be dying, for want of something to eat. Should this be so, then "What to Eat, and Who's to Eat It" may be what is to be settled by the Armageddon—the last great battle on earth, as it bears the cause of so many minor ones. It would only be the last if no fighting men or boys were left to fight another: a thing which might quite easily happen. But great events do not always spring from equally great causes, as the most decisive battles, whether by land or sea, are seldom those in which most combatants were killed or wounded. So far, we have supposed our combatants to have serious grounds for disagreement. But they would disagree quite as much, and quite as long, if it were about a mere question of colouring a log-cabin or a rough stone wall. A wants to dig the clay it is built on, and mix it with water. B wants to lave it as it is, and to let wild Nature supply what she approves in the way of ornament. And C wants to give the chapel a tint that will make it all over alive. The other letters of the alphabet, if called on, would have their "views" on the subject; and if we watched its developments, we might soon agree with whatever person it was that borrowed the wise king's

remark, that "It is better to dwell in a corner of the house-top, than with a brawling woman in a wide house." "When the wicked rise, men hide themselves; but when they perish, the righteous increase." These are the sayings of a simple age; but there is some truth in them for ours.

Why do people in society (or, rather, in societies) all want to set about the same silly thing at the same moment? Take children in an infant-school? If you ask them, they will say: "Because it is the fashion"; but they repeat it because it has been repeated to them. Why do they hold up their right hands when the mistress holds up hers (all except little Jacob, who holds up his left hand because he thinks that one has the least work to do)? And why do they spread their fingers and shut their fingers when the dominant lady sets them the example? Perhaps she could say why. They could not tell you—not if you spoke to them in rhyme, and said, "Gentle shepherd, Tell me why?" We, who are a little older, know that you are all learning to do what other people do; and that it is in so doing that people's lives are principally spent—no matter whether the thing copied is a good thing or a bad one. Soon you will find in the world opposing teachers, who will want you to hold up your left hands when your teacher says "Right," and so to be as contrary as you can, all through the lesson; and unless your kind parents beat you well, and box your ears till they nearly break your necks, some of you may grow up into oppositionists, and opposition secretaries, and opposition leaders. Not that doing all these things for the opposition will hurt you or anyone else in the long run; they will both come to about the same thing; but your parents will want you to vote on their side, and will say how good they will think you if you do, and how naughty all good persons will think you if you don't. Some day, perhaps, you will get sick of the people that call themselves good, and leave them alone for ever. Once in a while, perhaps, they believe they are so; but that must be when they are very young, and of an impossible type. "Out of these convertites there is much matter to be heard and learned." But that will be for you, when you are older, and I am less inclined to believe all you hear.

Imitation does not begin with the infant-school, though from that it extends onwards till people are "past learning." For learning with most men is mere imitation of something which somebody perhaps devised for a different purpose. If you have devised a building with hard stone and granite columns, so placed as to obstruct no one's view, somebody else will

come and copy it with wretched iron shafts, caries and palties, and will then boast as if he had invented the whole miserable thing. And architects with some power of invention will applaud him, and pretend to believe that the fancy for substituting thin steel props for sufficiently stout stone ones was his idea (the brainsucker's), and that it is a wonderful novelty, and a thing to be copied by all architects in all future ages. But why do empty-headed people build these empty-seated places; or why did they build them, not seeing how soon they would be out of fashion? Cheaper things, and nastier ones, are in favour to-day, and cheaper ones yet may follow; the cheap-and-nasty school might as well have left your stone-column panel alone, and have modelled its own nastiness on its own lines. But "As long as skies are blue, and fields are green,

Morning will usher night, night urge the morrow;

Day waken day to grief, and year urge year to sorrow.

What we seem to want, is not so much a new censor of plays, who shall have power to keep all bad ones from being performed, as a censor (old or new) who shall keep every line of poetry out of the reach of our non-poetical "mob." What we can they make of it, except to misapply it, and destroy it! There is what some people think a drama, and a very old one: the drama of Job, who began as a great man, with many children and much cattle—the greatest of all the men of the East. Suddenly "by the blast of God they perished"; children, camels, flocks and herds; some of them the lightning slew, some the Chaldeans carried off; and Satan afflicted Job himself with sore boils from head to foot. "His days were swifter than a weaver's shuttle, and were spent without hope." His breath was corrupt, his days were extinct, the sepulchre was ready for him. "In a few years more he expected to go the way that he should not return." "O that I were as in months past, in the days of my youth, when God preserved me!" "The blessing of him that was ready to perish came upon me, and I said, 'I shall die in my nest, and I shall multiply my days as the sand.'"

"But the Lord blessed the latter end of Job even more than the beginning, and he saw his sons, and his sons' sons; that is, four generations." Perhaps it was a very early "Morality," or Scripture play; perhaps it was founded on fact—for things do happen so sometimes: "for he that endureth to the end, the same shall be saved."

BRICK ORNAMENT.—I.

THE USES OF MOULDED BRICK.

The use of the moulded brick for ornamental work is one which has not been grasped as it should, or the still further possibilities of this particular accessory adequately recognised. To-day we find the moulded brick mainly utilised for cornices, stringcourses, or pilasters; in the majority of cases by a more or less feeble imitation of Gothic, Classic, or Renaissance work, or a bad combination of all three.

It is not my intention to illustrate this section with examples in the above mentioned positions. Combinations of individually-moulded bricks forming such compiled features can be seen practically anywhere, although it requires a very thorough study of Classic architecture to utilise to the greatest advantage such as are based on these principles. There are other positions where the moulded brick can be most satisfactorily introduced, with more original and beautiful effects, to the advancement of ornamentation in this medium. Perhaps the principal one would be as an accessory in panelled work. Three or four of the commonest kinds of

moulded brick are shown in Figs. 1 and 2. Taking these for a basis to work upon, their application to panelled ornamentation is shown by the succeeding figures. The first illustration on Fig. 3 shows the application of the splayed brick to small pattern diaper-work of half brick width, in raised and sunk work, with a half-brick spaced opening. The

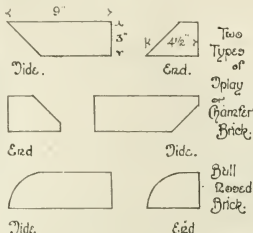


FIG. 1.

second illustration on this figure shows similar bricks utilised for flush-faced patterns, or a simple sunk opening. These bricks usually have a splay of 45deg., and are readily obtainable at this angle, as also are the common triangular or pointed coping bricks for 45in. walling; these, hocked together, form the centre-piece of the diaper.

Here, at once, we have all that is requisite

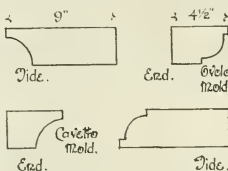


FIG. 2.

for the designs shown—in materials ready made to hand, obviating any necessity for cutting in their actual execution; whilst many of the other designs illustrated would require very little cutting in the way of specially-placed bricks to obtain a different or an elongated pattern on the same principle. In studying out the latter it is essential to take one of the samples of mouldings here shown, as applied to varying widths of panelling, as the same difficulties of



Half brick spaced opening
Off-centred Relief in Color!



FIG. 3.

jointing occur with any variety of the moulded brick, when used in these positions. The next two illustrations (Figs. 4 and 5) show the same variety of brick used in the wider one-brick spacing; whilst the second illustration upon the latter figure shows a position to be avoided, on account of the bad weather-joint formed, and which would, in consequence, have a tendency to deteriorate quickly. As will be seen, it is necessary by this method to cut two or three of the bricks

to obtain the continuation of the correct bond in the same courses, without interfering at all with those over or under. Fig. 6 shows a method of using the bricks in their entirety,

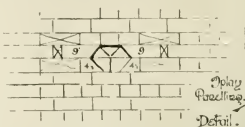


FIG. 4.

without any extra labour of cutting at all. It involves, however, the introduction of stretchers in the positions indicated in the heading course, to pick up the bond, thus breaking the customary uniformity of this course to some extent. A Queen closer is also used, as indicated, for the same purpose, in

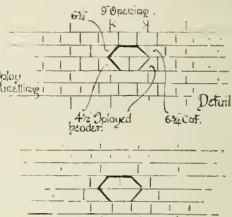


FIG. 5.

the stretching course, which helps to form the splayed brick panel, again breaking the uniformity of this course. One portion of the panel itself is formed by the insertion of the above-mentioned pointed coping bricks if the double splay bricks required in this position are not readily procurable.

Although it may be considered a disadvantage to break the correct uniform bond, as shown by this illustration, it is really not

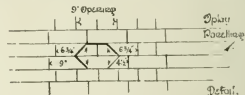


FIG. 6.

a noticeable point. The vertical jointing is broken correctly enough for all practical purposes, whilst the trifling lack of uniformity in the horizontal joints is quite unnoticeable in the general scheme, particularly from a distance, with the more powerful pattern formed by the panel itself as a foil. In many instances, though, the possibility of forming some species of ornament by way of relief, either in a continuous line or by grouping,

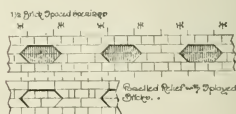


FIG. 7.

thus saving the extra labour entailed by cutting, would prove a distinct desideratum. In all probability it will mean the difference of using some system of ornamentation or none at all. Fig. 7 shows the same-shaped panel adapted to one-and-a-half brick widths. The two courses forming the panels in the first

illustration on this figure being mainly built with stretchers, giving a broader effect, more in keeping with the wider panelling. This course is, therefore, picked out into stronger relief by the heading courses above and below. It is a method quite admissible in many positions for ornamental work of this nature.

In the endeavour to introduce regular alternate coursing, with the least amount of

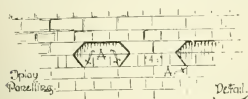


FIG. 8.

cutting, and that only in two of the panel bricks, a couple of Queen closers are used, as shown by the second illustration on the same figure. There is the same point to be noted in this illustration as mentioned previously—viz., it should not be used in the reverse position, as shown by Fig. 8. The weak jointing at A.A., immediately off the splay, would have a tendency to perish quickly. Figs. 9 and 10 show this panelling

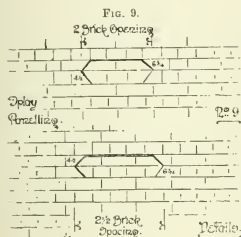
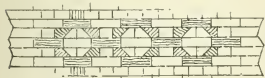


FIG. 10.

applied to a two and a two-and-a-half brick opening respectively. As will be seen, this principle of panelling may be applied to any length; although it requires care and methodical working out for correct brick treatment in the matter of breaking vertical joints. Any type of moulded brick suitable for such angle positions may, of course, be



Plair octagonal pattern, in Colour relief; and Quirk;



Raised and Quirk, Colour relief.

FIG. 11.

adapted to this work, be the splay or any of these shown. Fig. 11 illustrates the use of the same brick in other methods of panelling. Showing the effects obtained by colour relief, sunk, and raised and sunk coursing. The half-tossed, cavetto, and grooved bricks, adapted to these positions, afford a more ornamental, and, therefore, pleasing, relief in this class of work, as will be seen on reference to Figs. 12 and 13. A great con-

sideration in favour of the splay brick for this ornamental work is its adaptability to the interior bonding of the wall, so far as it is necessary for such bricks to be let in. With moulded bricks built into a wall, their ends showing in this manner on the face for ornamental purposes, the customary clean, perfect jointing is, of course, impossible without a good deal of expense, either by

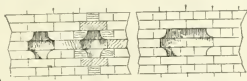


FIG. 12.

rough rubbing or having a reverse brick to fit. It is just possible a ready-made moulded brick might occasionally be found to answer this purpose, and suit the position better than adapting the splay brick. As shown by detail in the last illustration, the joint is raked out and pointed with coloured cement putty to match the ground, the cement being tinted with brickdust, ochre, or, in the event of dark colours, ash, to obtain correct tone. Fig. 14 shows the use of small, sunk, or patterned panels, as illustrated above, when arranged in systematic and symmetrical groups to form a still larger central or inter-

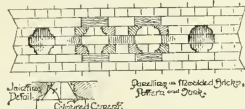


FIG. 13.

mediate pattern. Fig. 15 also illustrates how a little raised and sunk ornament can be applied, can be varied and massed for a central feature, such as a gable or other positions, for instance, on a line of ornament. Fig. 16 is again another departure in this style, the two diagonal cross-reliefs being formed somewhat on the principle of herringbone brickwork. The centre one, although an innovation in the use of upright bricks, forms a strong relief upon the wall face. Such features could be easily arranged in the outer half-brick facing to a wall of sufficient thickness to admit of their use, without really



FIG. 11.

similar figures, by variation of the bond. This is, apparently—perhaps to the casual observer—an exceedingly slight point, scarcely worthy of note. However, though apparently slight, it is one worthy of particular attention. It is by such variations as these that the customary cast-iron, mechanical, machine-made appearance conveyed by the majority of regular, uniformly-laid modern brickwork may be broken up. Methods of inequality, in alternation, are required to effect this; the harsh, hard air of complete uniformity is so dispelled, introducing the spirit of picturesque. These points are well worthy of consideration, and should be studied out

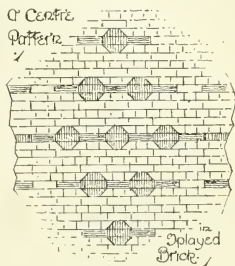


FIG. 14.

more in detail with regard to other examples illustrated in this work when actually applied. Fig. 18 illustrates a slightly more elaborate although not difficult, piece of work, on somewhat similar lines to the two former figures. It is also formed with splayed and three- or four-pointed coping-bricks, there not being any cutting required at all, although such hardly appears to be the case at first glance, with an apparently complicated piece of work. The various dimensions figured upon

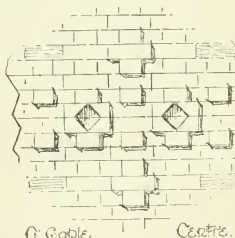
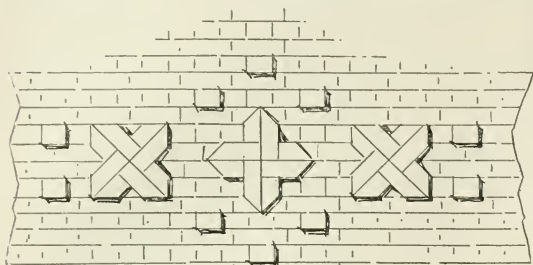


FIG. 15.

the sketch are quite self-explanatory with regard to this point. A correct, star-shaped ornament can be further formed by cutting away to the dotted lines shown by the upper left-hand portion of this figure, or by cutting a brick diagonally, as shown in Fig. 19, and backing together the pieces so obtained. The latter method, though, involves considerable labour in cutting, not merely the points alone, but grounds as well, which also have to be considered.

Yet another position in which the moulded brick may very often be satisfactorily used—the formation of bosses—as illustrated by Fig. 20. It will be seen that these involve running a wider centre band in the coursing, formed by bricks on edge, giving a 4 in. face. The effect obtained, breaking up the uniformity of the coursing, forms a good variation towards the picturesque principles previously alluded to. A slightly more refined effect could be produced for some purposes by cutting down the moulded bricks



Or Centrepiece
Brick is Employed

FIG. 16.

to the ordinary 8 in. coursing width, if preferred, so as not to interfere with the regularity of the courses. The centre of the bosses may be easily fitted with a bat, either

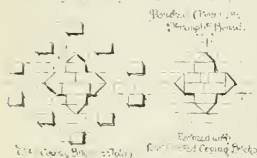


FIG. 17.

although the latter are usually of a somewhat too east iron or ornate character. On this figure the boss set on the diagonal has the angles filled in with the triangular bricks previously described. The ends are shown with

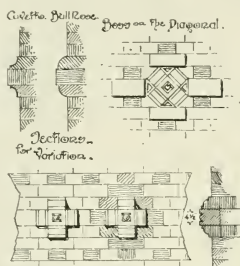


FIG. 18.

FIG. 19.

left plain, or with some slight carved relief, as indicated, introduced; such would not be an expensive item. An ornamental tile can also be set in the centre, if preferred,

a small cut-out panel, throwing the centre into stronger relief; this might be alternated with plain ends. Beyond the bat required for centrepiece there would be no cutting necessary here again.

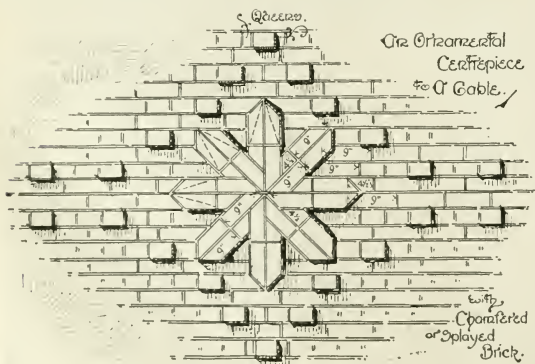


FIG. 18.

In the study of materials and their application it should be one of the first duties of the architect to find out what can be done with them. Utilising such individual materials in an advanced manner for ornamental purposes, when the nature of the work, even if only by moderate financial possibilities, admit of so doing. Not to obtain cheap stereotyped ornamentation by means of, and the introduction of, other and foreign materials to that in which he may be primarily working for the time being.

W. G. KERBY, Architect

NOTES ON SOME PRINCIPLES OF PROFESSIONAL PRACTICE, AND SUGGESTIONS FOR A CODE OF ETHICS.*

By MR. C. MCARTHUR BUTLER, F.C.I.S., Secretary of the Society.

For some time the Council have had under consideration the question of drafting a Code of Ethics relating to matters of professional etiquette in the architectural profession, and it was thought the importance of the subject warranted it being brought before the members with the view of eliciting opinions thereon, and, if possible, of formulating some basis on which further action might be taken by Council of the Society. The honour of opening the discussion was placed in my hands, and in going into the matter I found that the information then in my possession regarding the question in relation to professions generally was inadequate to enable me to deal usefully with the subject, and therefore, as a first step, I approached some fifty societies connected chiefly with architecture, engineering, and the allied professions at home and abroad, but including also a few institutions representative of other callings, and I desire, in the first place, to acknowledge the very kind way in which the secretaries of the institutions concerned most freely and promptly gave me the information I sought. I make no claim to originality of ideas or methods in introducing the subject, my efforts having mainly been directed to collecting and collating statistics and details; but if I am unable to place any fresh information before you, yet I hope to focus your attention in such a way as will elicit your criticisms and suggestions. I propose, in the first instance, to make a brief reference to the practice and custom prevailing in other professions, then to consider what is being done by architectural bodies, subsequently making a reference to some of the main principles which it appears to me should govern architectural practice, finishing with some suggestions for procedure, and for the basis of a Schedule of Practice and a Code of Ethics, dwelling, if time permits, more particularly on those points on which a difference of opinion may be likely to exist, and which therefore best lend themselves to discussion and the interchange of ideas.

CUSTOM IN OTHER PROFESSIONS.

I need only refer in passing to the professional etiquette prevailing in such professions as those of law and medicine, the Code applying to the latter being probably one of the most stringent, so much so that from a perusal of letters in the public Press, one is led to think that the line may sometimes be drawn to an extent which might appear to amount to an injustice in certain cases. In these professions, as well as in others possessing similar statutory powers, the existence and power of enforcement of the regulations which they adopt, tend, in my opinion, to create and maintain a high standard among their practitioners, and a corresponding standing in the eye of the public, seeing that any serious breach of professional etiquette is followed by the offender being deprived of further opportunities of practising; whereas, in professions having no legal standing, the offending member may be struck off the roll of the society to which he belongs, but that does not, at present, prevent him carrying on his practice, and is not, in the present condition of these professions, so drastic a punishment or deterrent

* A paper read before the Society of Architects, April 11, 1912.

as it is in the case of others. Among the numerous institutions representing the engineering, surveying, and allied professions in the United Kingdom, the only one, so far as I am aware, which has a Code of Ethics as well as by-laws, is the Institution of Civil Engineers, whose procedure in this respect is being closely followed by the Institution of Electrical Engineers, and by the newly-formed Association of Consulting Engineers. The Institution of Mechanical Engineers has adopted similar methods. Other institutions and societies, such as those representing the interests of gas, mechanical, mining, marine, and sanitary engineering and surveying have at present no Code of Ethics, though in one or two cases the matter is under consideration. Most of them are content with retaining power under their by-laws dealing with any matters of professional practice affecting their own members. The opinion has been expressed that in some cases, such, for instance, where an institution is called upon to act in a judicial capacity in dealing with complaints regarding professional etiquette or misconduct, a Code might limit and hamper that institution in the performance of these duties, but the general feeling appears to be in favour of a Code.

THE ATTITUDE OF ARCHITECTURAL SOCIETIES.

We will now consider the custom in regard to architectural societies, noting first Colonial and Commonwealth practice. The American Institute of Architects offers to its members advice relating to the principles of professional practice, and puts forward a canon of ethics. The architectural institutions of Australia are co-operating in compiling a Code, while the one issued by the Central Society of French Architects has, in its standard, been adopted by other French architectural societies. In South Africa, similar measures are being adopted by the various associations of architects, following the successful efforts which have been made in that country in regard to the registration of architects, a matter in which the Society of Architects, through its South African branch, played an important part. In Canada and the Royal Architectural Institute of Canada and other associations of architects, which are rapidly springing up in that progressive Dominion, have each their Code of Ethics, administered in most instances, I believe, under an Act of Parliament. In this, as in some other matters such as registration, the societies at home are content to follow where they ought to lead. Let us see what is being done in regard to this subject by these societies. Architecture is one of the few, if not the only one, of the great professions, the practice of which at home is not regulated by Act of Parliament, and probably it is the only one which is split up into so many institutions and societies, all having very nearly the same general aim. There are, for instance, in London, the Royal Institute of British Architects, the Society of Architects, and the Architectural Association, and in the provinces there are seventeen architectural societies allied to the Royal Institute, besides several at present unattached, and others in course of formation. All these societies have by-laws which enable them to deal with specific cases against their members, and, in most cases, a member on joining has to sign a declaration against illicit commissions as well as an undertaking to keep the regulations. The allied societies, as one would expect, are practically in every case governed by the same practice of the R.I.B.A. as contained in the regulations published in their Kalendar. These relate to the signing of buildings, and display of names by architects, the making known to the client of the architect's interest in materials or devices used on buildings, the question of supplanting other architects, and the payment for the quantities by the client (a matter dealt with in the Schedule of Charges), and also include the recent regulation relating to participation in architectural competitions.

THE EFFECT ON THE PROFESSION.

Thus we find the architectural profession as a whole at present without any generally and publicly recognised schedule of the principles to be observed in practice, with

no publicly recognised competition regulations, no publicly recognised scale of charges, and no publicly recognised penal Code; the regulations which are at present in force, excepting the one relating to competitions, being more in the nature of expressions of opinion, and relying upon custom for their enforcement, so far, at any rate, as they relate to unattached architects. Each member of the profession may set his own standard, and is thus amenable to no disciplinary action that might impose a voluntary obligation in respect of the rules of any professional body to which he may belong, which are usually confined, as previously stated, to a declaration against illicit commissions (now probably rendered unnecessary by Act of Parliament), and an undertaking to keep the rules, the most important of which, in the opinion of the member concerned, is probably that relating to the payment of dues. In the rare cases, if any, where action has been taken by an institution not acting under statutory powers against a member for unprofessional conduct, removal from the roll of such institution on this ground, so far as the public or even the profession beyond those immediately concerned with the case is concerned, has no more effect than if such removal was due to the relatively milder breach of the rules relating to the payment of the fees, seeing that the reason of the removal of the offender from the register is not made public, nor is he thereby debarred from continuing to practise. The unattached architect, whose professional life has not even been controlled, and is under no control within the limits of professional matters.

SUGGESTIONS FOR A REMEDY.

This state of things can be remedied to some extent, and at present, so far as architectural societies are concerned, by the universal adoption by them of a Schedule of Principles and a Penal Code; but the unattached architect still remains uncontrolled, and, in my opinion, the only effective way of dealing with the whole matter is by statutory measures such as would be provided under a Registration Act. It is desirable, under the circumstances, that a Schedule of Practice and a Code of Ethics should be instituted for the architectural profession, and, if so, on what basis should the latter be drafted, bearing in mind the fact that architectural societies reserve to themselves power to regulate, if only to some limited extent, and on certain points, the conduct of their members, and that it would appear that by laying down wider regulations they might possibly be hampered when dealing in a judicial capacity with these matters? In my opinion, the desirability in principle for a Schedule of Principles of Practice, and a Code of Ethics, is admitted, and that what is good for the societies concerned may be held to be good for the profession as a whole. Here, however, we are faced at once with the difficulty already referred to of dealing with that considerable body of architects outside any architectural society, who possibly could not be expected, and certainly could not be obliged, to adhere to any general schedule or Code, nor against whom could such a Code be enforced in the absence of a controlling body representing the whole of the profession and vested with statutory powers.

A BOARD OF PROFESSIONAL CONTROL.

In the absence of, or in the anticipation of, such a controlling body as would be constituted under a Registration Act, I suggest the immediate formation by agreement between the architectural societies, of a Board of Professional Control, representing every architectural society in the United Kingdom in such proportion as may be arranged. This Board would have no power to interfere in the domestic policy or procedure of the societies concerned, but would act after due deliberation, with the weight of combined authority, on any questions of public or professional interests, and might also act as an appeal or advice court if required to do so by any architectural society in regard to any question affecting its particular society. By this means, pressure could be brought to bear both on public bodies and members of the profession much

more efficiently than under the present system, while it would be very difficult and highly undesirable for even the unattached architect to ignore the list of a body so constituted; indeed, in my opinion, one effect of the formation of such a body would be to encourage those outside to come into one or other of the societies. In other words, there would be unity of action and cohesion when there now exists weakness and impotency, and, in my opinion, everything that tends to unity is a step towards a more secure Registration Act, I think we may well, in the meantime, lay down certain principles of practice, and be prepared with a Code of Ethics acceptable to the various societies, with a view to general adoption now, and their incorporation in an Act of Parliament in due time. The course of my inquiries I have found that considerable interest is being taken in the suggestion among architectural societies, several of whom are prepared to consider any proposition; therefore I think there is every reason why the Society of Architects should persevere in this matter, and endeavour, if possible, in conjunction with other interested bodies, to see the matter carried into practical effect.

ARCHITECTS AND THE PUBLIC.

I recognise the fact that just as the possession of a Royal Charter or of statutory powers, which confer dignity and responsibility, may at the same time, to some extent, limit and restrict the operations of the body which possesses them, leaving the less favoured in this respect more free to develop and expand, so to lay down too severe a Schedule of Practice and Code of Ethics might possibly tend to restrict the freedom of professional action, and the progress of the art of architecture; but, on the other hand, the want of some reasonable and definite standard, or the absence of any general and agreed pronouncement made under the combined authority of the various societies on behalf of the profession, accounts, in my opinion, for the fact that not only is the profession divided against itself in certain matters of policy, and its members distrustful of one another, but the public and public bodies are led to imagine that the standard of architectural etiquette, if it exists at all, is so low that architects may be called upon to tender for work, to accept public appointments or private work on inadequate terms, to enter into competitions arranged on undesirable lines, and generally to conform without protest in matters and to conditions which would not for a moment be entertained by members of any other profession. The relative position which an architect holds in the opinion of the public is often shown on occasions such as the public opening of a building, when the architect is frequently the only person connected with the undertaking who is not mentioned in the report of the proceedings, nor does the profession get more than a very scanty share of the titular honours so freely bestowed in other directions.

ESSENTIAL QUALIFICATIONS FOR THE PRACTICE OF ARCHITECTURE.

I will assume, therefore, for the moment that we agree in principle, and that we can get on with the form which such a Schedule of Practice and a Code of Ethics should take, and it appears to me that as the profession is at present constituted, and pending statutory registration, what we should aim at should be the setting up of a body as has been indicated, and the laying down of certain principles of professional practice, and from these to draw up certain rules, the violation of which would constitute unprofessional conduct. From a perusal and comparison of the various Codes in use amongst architectural societies at home and abroad, I have found them to be in general well adapted, and in regard to setting out the principles of professional practice I consider that the circular issued by the American Institute of Architects which offers advice relating to professional practice can hardly be improved upon in seeking to maintain a high standard of practice and conduct on the part of members of the profession, and as a safeguard of the important financial, technical, and aesthetic interests entrusted to them. The profession

of architecture, as the American Institute truly says, calls for men of the highest integrity, business capacity, and artistic ability. The architect is entrusted with financial undertakings in which his honesty of purpose must be above suspicion; he acts as professional adviser to his client, and his advice must be absolutely disinterested; he is charged with the exercise of judicial functions as between client and contractor, and must act with entire impartiality; he has moral responsibilities to his professional associates and subordinates. Finally, he is engaged in a profession which carries with it a grave responsibility to the public. These duties and responsibilities cannot be properly discharged unless his motive, conduct, and ability are such as to command respect and confidence. I am of the opinion that if the architectural societies will take a wider view of their responsibilities to the profession, while not neglecting their own immediate concerns as societies and work together by means such as I have indicated on all matters of general interest to the profession or the public, they can, under proper conditions, do an enormous amount of good in the direction of maintaining a high professional standard, and consequently in raising and maintaining the whole tone and standing of the profession and of the art in the estimation of the public. No set of rules can be framed to include all the duties of the architect in his various relations to his clients, to contractors, to his professional brethren, and to the public; but the following may be enumerated as some of the main principles which should govern the conduct of members of the profession, and may serve as a guide in circumstances other than those enumerated.

SUGGESTIONS AS TO SOME MAIN PRINCIPLES TO BE OBSERVED IN ARCHITECTURAL PRACTICE.

THE ARCHITECT IN RELATION TO HIS CLIENT.

1. **Status.** The architect's relation to his client throughout the entire course of his practice is that of an independent professional adviser; but an additional relation is created when he is appointed as the interpreter of a contract between his client and a contractor, though the fact that the architect is paid by the client does not invalidate his obligation to act with impartiality.

2. **Drawings and Estimates.** The architect provides preliminary drawings and estimates which are required, but if an unreasonable amount of work is imposed before the contract drawings are prepared, he must be free to make such variations from the preliminary plans as may be necessary. It is desirable in regard to works of any importance that a written agreement be made with the client before the signing of the contract, regarding the ownership of the drawings and other documents, and the supply of a duplicate set, at the expense of the work. The architect cannot properly hand or otherwise guarantee a contract or contract.

3. **Supervision.**—On all work except the simplest, it is to the interest of the client to employ a superintendent or clerk of the works, and, in certain cases, to also retain a resident or local expert. These persons, appointed and paid by the client, should be known to the architect under whose direction they are to work.

4. **Charges.**—The Schedule of Charges as approved by the Board of Professional Trustees is the minimum of payment to the architect, and, in circumstances, may justify a higher charge. It is desirable that the architect be agreed, before the parties begin the work, as to the fee. The architect must be complete in regard to fees, or under a false impression.

5. **Payments.** The architect should not be the victim of payment made on behalf of his client except by special agreement, but, after receiving certificates of recommendation from his clients, he should insist on payment.

6. **Expert and Honorary Services.** The architect, when retained as an expert, should receive payment proportionate to the responsibility and difficulty involved. Experts should not knowingly name prices in competition with one another. The architect should not undertake such an honorary capacity

except for charitable purposes approved by the Board of Professional Control.

7. **Tenders.**—In advising that none but trustworthy bidders be invited, and that the contract be given only to persons who are reliable and competent, the architect protects the interest of his client.

THE ARCHITECT IN RELATION TO THE CONTRACTOR.

8. **Contractors and Craftsmen.**—As the architect decides whether or not the intent of his plans and specifications is properly carried out, he should see that these documents are complete and accurate, and should not call upon the contractor to make good oversights or errors in them, or attempt to shift responsibility by permitting indefinite clauses in the contract or specifications. While he must condemn bad work, he should commend good work, and intelligent initiative on the part of craftsmen and other workmen should be recognised and encouraged.

THE ARCHITECT IN RELATION TO THE PROFESSION.

9. **Building Trades.**—The architect should not directly or indirectly engage in any of the building trades, nor be a party to any building contract except as agent. If he has any financial interest in any building material or device he should not specify or use it without the knowledge and approval of his client.

10. **Offering Services.**—The seeking out of a possible client, and the offering to him of professional services on approval and without compensation, unless warranted by personal or previous business relations, tends to lower the dignity and standing of the profession, and is to be condemned.

11. **Advertising.**—Advertising tends to lower the dignity of the profession, and is therefore condemned, as is the display of the architect's name upon a building under construction; but the unobtrusive signature of buildings after completion is approved by the Board of Professional Control. The use of initials designating membership in any architectural or similar society is proper in connection with any professional service, and is to be encouraged as helping to make known the nature of the honour they imply.

12. **Competitions.**—The architect should not take any part in a competition unless it be conducted according to the best practice and usage of the profession as formulated by the Board of Professional Control. Except as an authorised competitor, he may not attempt to secure work for which a competition has been instituted. He may not attempt to influence the award in a competition in which he has submitted drawings. He may not accept the commission to do the work for which a competition has been instituted, if he has acted in an advisory capacity either in drawing up the programme or in making the award. He shall not submit any drawings in any competitions other than those designed and prepared under his personal supervision, nor attempt to secure any work for which a competition remains undecided.

13. **Injuring Others.** The architect should not, directly or maliciously, injure, directly or indirectly, the professional reputation, prospects, or business of a fellow architect, nor criticise in the public Press the professional conduct or work of another architect, except over his own name.

14. **Supplanting Others.** The architect should not undertake a commission while the claim for compensation or damages or both of an architect previously employed, and whose employment has been terminated, remains unsatisfied, unless such claim has been referred to arbitration, or issue has been joined at law; or unless the architect previously employed neglects to press his claim legally; nor should he attempt to supplant a fellow architect after definite steps have been taken toward his employment.

15. **Membership in Societies.**—As it is only by co-operation and by the personal interchange of views and opinions that the profession as a body, exercise an influence on the art and on public opinion, and its

members be brought into better relations the one with the other and with one another, an architect should qualify for and join, and encourage his subordinates to do so, any local architectural society, and also, and in any case, one or other of the larger and more representative societies, and should take an intelligent and active interest and part in their proceedings. Should such a course not appeal to him from a personal viewpoint, he should look at it from another, that of joining a society not for what he can get out of it, but for what he can put into it for the general good.

16. **Duties to Pupils.**—As the qualifications for the practice of architecture should be based on general education, as well as on technical and professional training, the architect should so advise intending students, and give pupils and assistants every facility and encouragement to avail themselves of educational facilities, and support to the best of his ability all recognised architectural educational bodies and professional societies. The architect should not undertake the training of a pupil, nor take more than one pupil at a time, unless he has the proper facilities, scope, and opportunities for giving him, or them, personal oversight and instruction.

THE ARCHITECT IN RELATION TO THE PUBLIC.

17. **The Public and Building Authorities.**—The architect should be mindful of the public welfare and of his duties as a citizen, and should participate particularly in those movements for public betterment in which his special training and experience qualify him to act. He should not, even under his client's instructions, engage in or encourage any practice contrary to law or hostile to the public interest, for as he is not obliged to accept a given piece of work, he cannot, by urging that he has but followed his client's instructions, escape the condemnation attaching to it. The architect should support all public officials who have charge of building, in the rightful performance of their legal duties. He should carefully comply with all building laws and regulations, and if any such appear to him unwise or unfair, he should endeavour to have them altered.

18. **Professional Qualifications.** The public has the right to expect that he who assumes the title of architect has the knowledge and ability needed for the proper conception, presentation, and supervision of all building operations which he may undertake.

SUGGESTIONS FOR A CODE OF ETHICS, THE VIOLATION OF ANY ITEMS OF WHICH SHOULD CONSTITUTE UNPROFESSIONAL CONDUCT.

The following items are suggested as a guide, but their enumeration should not be construed as a denial of the existence of others equally important, and just as the several items indicate offences of varying degrees of gravity, so the penalty for infringement would involve warning, reprimand, expulsion, or such other punishment as the Board of Professional Control may at the time decide.

IT IS UNPROFESSIONAL FOR AN ARCHITECT—

1. TO ENGAGE DIRECTLY OR INDIRECTLY IN ANY OF THE BUILDING TRADES, EXCEPT AS OWNER.
2. TO GUARANTEE AN ESTIMATE OR CONTRACT BY BOND OR OTHERWISE.
3. TO ACCEPT ANY COMMISSION OR SUBSTANTIAL SERVICE FROM A CONTRACTOR OR FROM ANY INTERESTED PARTY OTHER THAN THE CLIENT.
4. TO ADVERTISE.
5. TO TAKE PART IN ANY COMPETITION THE TERMS OF WHICH ARE NOT IN HARMONY WITH THE PRINCIPLES APPROVED BY THE BOARD OF PROFESSIONAL CONTROL.
6. TO ATTEMPT IN ANY WAY, EXCEPT AS A DULY AUTHORISED COMPETITOR, TO SECURE WORK FOR WHICH A COMPETITION IS IN PROGRESS.
7. TO ATTEMPT TO INFLUENCE DIRECTLY OR INDIRECTLY THE AWARD OF A COMPETITION IN WHICH HE IS A COMPETITOR, OR IN

WHICH HE IS INTERESTED IN ANY OTHER CAPACITY.

8. TO ACCEPT THE COMMISSION TO DO THE WORK, EITHER PERSONALLY OR BY PARTNERSHIP, FOR WHICH A COMPETITION HAS BEEN INSTITUTED IF HE HAS ACTED IN AN ADVISORY CAPACITY EITHER IN DRAWING UP THE PROGRAMME OR IN MAKING THE AWARD.

9. TO INJURE FAISELY OR MALICIOUSLY, DIRECTLY OR INDIRECTLY, THE PROFESSIONAL REPUTATION, PROSPECTS, OR BUSINESS OF A FELLOW ARCHITECT.

10. TO UNDERTAKE A COMMISSION WHILE THE CLAIM FOR COMPENSATION OR DAMAGE, OR BOTH, OF AN ARCHITECT PREVIOUSLY EMPLOYED, AND WHOSE CLAIM HAS BEEN REFERRED TO ARBITRATION, OR ISSUE HAS BEEN JOINED AT LAW, OR UNLESS THE ARCHITECT PREVIOUSLY EMPLOYED NEGLECTS TO PRESS HIS CLAIM LEGALLY.

11. TO ATTEMPT TO SUPPLANT A FELLOW ARCHITECT AFTER HE HAS COMPLETED HIS WORK AND BEEN TAKEN TOWARD HIS EMPLOYMENT.

12. TO COMPETE KNOWINGLY WITH A FELLOW ARCHITECT FOR EMPLOYMENT ON THE BASIS OF PROFESSIONAL CHARGES.

13. TO CRITICISE IN PUBLIC PRINT THE PROFESSIONAL WORK OR CONDUCT OF ANOTHER EXCEPT OVER HIS OWN NAME.

14. TO DEViate FROM THE SCALE OF CHARGES WITHOUT PERMISSION OF THE BOARD OF PROFESSIONAL CONTROL.

GENERAL OBSERVATIONS.

There are five points in particular arising out of the proposed Schedule of Practice and Code of Ethics to which I would call attention: (a) The Ownership of Drawings, (b) Scale of Charges, (c) Advertising, (d) Competitions, (e) Architectural Societies, (f) Public Authorities. In regard to (a), the Ownership of Drawings. The fact that an architect can be called upon to deliver up to a client all drawings and documents on completion of the work and payment of fees, in the absence of any express agreement to the contrary, renders it desirable, in my opinion, to consider the question of endeavouring to get the decision in "Gibson v. Pease" reversed, and in the meantime, in works of any importance, for the architect to arrange procedure with the client previously. In regard to (b), the Scale of Charges. The fact that the only authority and recognition which this scale has is based on custom, renders it desirable, in my opinion, from this point of view, to hasten an Act of Parliament under which such a scale would be legalised. On the question of the scale generally, I am of opinion that in the architectural profession payment by commission on the cost of the building is wrong in principle, if not immoral, as it is exceedingly difficult to get away from the fact that the architect benefits materially in proportion to the amount spent by the client, though he may and does, in the interest of his client, make every endeavour to keep within the limit laid down. The architect should not, in my opinion, be placed in a position where it may be inferred that his personal interests are likely to clash with those of his client. Again, a minimum scale is not unlikely to be considered or to become a maximum one. I have no practical proposal to make at present for the redrafting of the scale as it now exists; but it has been suggested to me, why have a scale at all? Why should not architects, like other artists, adjust their charges in accordance with what they can command for their services? In regard to (c), Advertising. It all depends on the interpretation and definition of the term, which I take it is intended to mean when applied to architects, that they should not employ commercial methods of making themselves and their work known to the public, that is to say, by direct advertising. As to indirect advertising, an architect, like any other professional man with any considerable practice, should hardly avoid it. His name is constantly brought before the public in the professional journals and by the technical papers, by the books or papers he publishes, to say nothing of his name and address on announcements on sites for public buildings, for which

publicly, if he sought it through the usual channels, he would have, in many cases, to pay a heavy charge. One sees in Colonial papers architects' announcements side by side with those of engineers, and a Canadian journal gives publicity to the fact that an architect, whose name and address are given, is holding the annual exhibition of his designs, and demonstrating the possibilities of various materials, and complete schemes of construction for various purposes. At home the architect who wishes to advertise must do so openly, but must rely on the kind offices of those who, presumably with his sanction, on theatre programmes or in displayed advertisements in newspapers, call attention to the fact that "this magnificent new theatre was designed by the eminent architect, Mr. Jones," or that "this building has been designed by the well-known architects, Messrs. Smith and Robinson, who were responsible for the Hotel, etc." The personal interview, or inspired article, illustrated or otherwise, harmless in itself, is but another form of advertisement, and one which also commends itself to the softer—or shall we say, the more seeking—side of the public patronage of architects. In regard to (d), Competitions. It has been urged upon me with considerable force and frequency by members of the Royal Institute, as well as others, that the restrictions very properly laid down by the R.I.B.A., and endorsed by the Society, should not altogether apply to small local architectural competitions. The reason, for instance, that an assessor is not always appointed is not invariably that the persons concerned do not agree in principle to such a course, but is sometimes due to the financial margin being so small that it will not justify the considerable expense involved in the appointment of an assessor, and if the local architects concerned are satisfied and willing to compete on the terms laid down by the promoters, it is suggested they should not be nudged penalised, under the present conditions prevailing in the profession, where, if an architect is loyal to his society and refrains from competing, he leaves the field open to others who, for reasons previously stated, are under no control or obligation to the Society or the Architectural Society. One has to allow for human nature, which in this case usually takes the form of joining a society for personal benefit and making use of it for one's personal ends, though I am bound to say from experience that the other point of view has occasionally prevailed, the possibility of there being any other than the selfish motive in having prizes awarded to the person concerned. I may here say that in the Dominion of Canada membership in local associations of architects is compulsory by law on those who desire to use the title of architect. In regard to (f), Public Authorities. The architect sometimes finds himself hampered with the requirements of building regulations, or, when in the officials whose duty it is to administer them; but his efforts will, of course, be directed to complying with the requirements of lawfully constituted authority and to find a remedy for his grievances (if any), not in endeavouring to evade, but to amend, those regulations which appear to him to be irksome and unnecessary. There are, no doubt, many other points on which questions will be raised—indeed, several might well form subjects for separate discussion. I have only very briefly dealt with a few, but I have achieved my object if I have interested you in the subject and shown that the main question raised—viz., the desirability for some unity of purpose and action in formulating a definite standard of professional practice and etiquette, and the valuable assistance which might be given in this direction by the various architectural societies co-operating, while retaining their separate entities, is one worthy of serious consideration. It only remains for me to say that the opinions I have expressed are personal to myself, and are put forward for the purpose of eliciting criticisms or suggestions, and only to the extent to which they may subsequently be endorsed by those concerned must they be taken as representing the views of the Council or of the Society.

"BUILDING NEWS" DESIGNING CLUB.

A STONE BRIDGE AND TOLLHOUSE TO A STADIUM.

Stadium grounds have come to stay, and the need of some more suitable approaches to such grounds other than the temporary extravaganzas hitherto associated with exhibition displays of this character suggested the subject for a competition to be held by the members of the Designing Club. We publish the result of the contest to-day. We are aware that the project was in some ways an ideal one, combining as it does a three-spanned bridge, as well as the tollhouse, to constitute an approach to a stadium.

"Five Towns" seems, on the whole, to have best realised our intentions, though "Why Not" sends a very quiet and pretty scheme which runs him rather hard. The third design was not so easy to settle upon; indeed, we have had considerable hesitation in awarding the position to "Liver," "Purgh Wallis," "Black Diamond" (device), "Never-do-well," "Jorvie," and "Veritas." The five schemes also possessing claims which, however, not overlooking the truth, more precisely, our choice for the third place was really arrived at by selecting the one we perhaps disliked least instead of premiating something which claimed our admiration most.

The first place is won by "Five Towns," because his sturdy-looking tower adds an importance more commensurate with a big place of assembly, and as looking equal to a busy recreation enterprise. Of course, the projecting shrubberies and posts with chains (which, however, not overlooking the fact the block plan) are out of character with the pushing and incidental conduct of a pleasure-seeking crowd. They suggest, in contrast to that, the quiet retirement of a cemetery entrance or some private park environment. The bridge starts more fairly, so to speak, with this gateway than in "Why Not's" plan, and the house also is more compact. We are not so sure that the repetition of the front archway on the north or return side of the tower is an advantage. A pair of small square windows instead of one central light would have added solidity of effect, and so might look more restful, besides being broader in treatment. Light is not a question in this case, as for that end the front and rear arches amply suffice. The gates certainly would be inadequate as here shown to regulate the entrance; in fact, they could only work efficiently if one series of turnstiles were fitted up beyond the pay-office for the issue of tickets. "Liver" is better in this regard than either "Five Towns" or "Why Not." The clock-room, on the first floor, in "Five Towns' plan is not needed, as ample space is provided in the tower higher up for the little works of so ordinary a timepiece.

"Why Not" we have already mentioned favourably. The strong shadows on the semicircular, bastion-like towers rather indicate rectilinear, or, at best, a hint of conical ones, as shown in the view. The gateway design, in the main, as a composition seems too undemonstrative for the purpose in mind, and the turrets do not grow naturally out of the plans, as they ought to do as a justification for their employment. The money-taker's hatch window, at first sight, does appear to justify the projection of one tower by its selling the public to purchase their tickets before reaching the gates; but to charge people to send out in the rain and wind while transacting so important a preliminary and necessary bit of business is a very bad arrangement, and, besides, clamourers at the hatchway would soon get out of control. We do not like the lavatory and w.c. next the food-grocery, and the office portion of the house, situated in the T-shaped house on plan is over spaces without being particularly convenient, and it is minus a bathroom. The elevation on the west flank of the building, with the straggling parapet (the bridge's starting point, ought look awkward looking over the bridge, to jump over without

admission and adjacent to a ticket-office, the left-hand wicket for public exit. All three to be independent of each other, and to form part of the big gates, which are to open for occasional cart traffic to and from the stadium, or for clearing the stadium at the close of any meeting. The tollgate-house to provide living-room, small kitchen and scullery combined, and offices. Three bedrooms for keeper upstairs on first floor, but one of the three rooms may be on a second floor. Provide a small ticket-office as part of this lodge. The style of architecture to be Edwardian or Early Tudor adapted to stone, and stone-slatted roof. The parapet walls of bridge to be 4 ft. above the roadway, which will need no side pathway. A clock may be

Hall, Whitechapel, Bedford College, and Red Cross Hall (Southwark). Parochial buildings at St. James-the-less, Bethnal Green, and St. Martin's, Haverstock Hill. He also restored the churches of St. James-the-less and St. Martin, and many others, and Wesley's Chapel, City-road, and built many Wesleyan chapels, of which his favourite was Holly Park Chapel, Crouch Hill, to which he added the spire the year before last.

Many of his works have been illustrated in the *Builder*, of which he was a constant reader, and, indeed, spent most of his leisure in reading again our back numbers, which he had had bound since 1830. He was happy and pleasant to the

—of fretwork for arches, vestibules, etc., which clearly show the excellent effects which can be obtained with this class of work at comparatively small cost. We may add that Messrs. Jennings and Co. supply a great variety of general builders' goods, of best quality at lowest prices. We notice, for instance, what seems a really efficient geyser (the firm's own patent) made complete in copper for £3.5s.

EXCAVATIONS AT LESNES ABBEY, KENT.

The current issue of the *Transactions of the St. Paul's Ecclesiastical Society*, constituting Part I. of Vol. VII., is, as usual, excellently edited and freely and well illustrated. It is published for the society by Messrs. Harrison and Sons, 45, Pall Mall, at 5s. net.

There are two contributions, relating to City churches by Wren, by Mr. Philip Norman, LL.D., treasurer of the Society of Antiquaries—those of Christ Church, Newgate-street (one of the architect's larger edifices), and St. Benet's, Paul's Wharf. In the latter case, the walls and columns are built on the actual sites and foundations of the Mediaeval choir; and the same is probably the case at St. Benet's, though here Dr. Norman speaks with less decision. Mr. Thomas Garratt, A.R.I.B.A., describes in detail the Chapel of St. Mary Magdalene, Kingston-on-Thames, built by Edward Lovekyn late in the 13th century, and rebuilt and re-endowed by his son John, a Mayor of London. A quarter of a century ago the chapel, which contains many original features and details, was threatened with destruction, but was repaired at a cost borne by members of the Surrey Archaeological Society, and under the direction of Mr. A. J. Stiles, F.R.I.B.A. The principal feature of the *Transactions* is, however, an account by Mr. Alfred W. Clapham of the history and remains of

THE AGUSTINIAN CHURCH OF LESNES, illustrated by a ground plan and by more than a dozen half-tone blocks from photographs, showing the interesting features discovered during the recent excavations.

The position of Lesnes Abbey, half-way between Plumstead and Erith, says Mr. Clapham, must once have been pleasant enough. It commands an extensive prospect over the marshes, the river, and the low-lying Essex shore, and the ground that rises steeply behind is thickly covered with wood, the crest having an irregular and diversified outline, which is still unspoiled by building. The excavations, which had the pleasure of superintending began there about sixteen months ago, by the energy and initiative of Mr. W. T. Vincent and the Woolwich Antiquarian Society, have now extended over the site of the church, chapter-house, and parts of the infirmary, dormitory, and frater. The church lay, for no apparent reason, upon the south side of the cloister, as at the parent house of Holy Trinity Aldate, at Whitechapel, St. Mary Over, Walsingham, Cartmel, and a number of other Augustinian houses. No part of it was ever used for parochial purposes, and consequently only one fragment now remains above ground. Built, or at least set out, about 1178, the whole of the details yet remaining in situ are of the same date. The plan adopted was the typical Cistercian one of the aisled nave, transepts with eastern chapels, and a small choir, and when complete the church must have presented an appearance very similar to Kirkstall. The church was planned on an unusual scale; indeed, the dimensions of the nave, 140ft. by 65ft. 6in., compare favourably with almost any other Augustinian church in the country. This building was eight bays long, and was entered by a very large door with recessed orders in the centre of the west front. Immediately within this door were found traces of the furnace used to melt down the roof-lead at the Dissolution, with a considerable quantity of the metal run in amongst the cinders. Heavy sleeper walls ran from end to end of the nave, carrying the piers of the two arcades. No column bases were found, owing



THE LATE MR. ELIJAH HOOLE, F.R.I.B.A.

introduced as a feature. Scale 8ft. to the inch. A general plan may be 16ft. to the inch, but the larger scale must be used for the house and gateway plans. Two elevations and one section. The view to be taken looking towards the bridge from the town. The stadium need not be shown.

THE LATE MR. ELIJAH HOOLE.

Mr. Elijah Hoole, F.R.I.B.A., passed away suddenly on March 27, 1912, in his seventy-fifth year. He was a pupil of the late James Simpson, C.E. (at one time President of the Institution of Civil Engineers), whom he assisted in the design and construction of engineering buildings for the Chelsea, Lambeth, Cardiff, and other waterworks companies. Mr. Hoole commenced to practise as an architect in London in 1864. Among a large number of his works may be mentioned Messrs. Chubb and Sons' lock and safe factory, and the workmen's industrial dwelling, for which he won medals at the Health, Inventions, and Paris Exhibitions. He built mission churches at Naples, Cannstatt, Belize, Kandy, Newfoundland, etc., and Laxness College, the Morley Memorial College (Lambeth), the University Settlements (Toynbee

very last minute of his life, which was throughout one of those described by Young: "That life is long which answers life's great end."

GENERAL WOODWORK.

Sentimental considerations seldom influence the choice of building material; but it is not sentiment, but sound common sense, for a leading firm in any line which, thanks to past neglect, has felt the inroads of the foreign competitor, to stand or fall by its challenge to all users to test the prices and quality of its specialities by those of the foreigner, as Messrs. C. Jennings and Co., of Bristol, Cardiff, Leicester, and Porthcawl have done.

That challenge has been fully justified, and there is absolutely no reason, tariff Reform or no tariff Reform, why foreign-made doors, windows, mouldings, and other joinery should be used by English architects and builders. The least any firm that has proved this is entitled to is first consideration at the hands of their fellow-countrymen, and we are sure that every user who will send fivepence in stamps to Messrs. C. Jennings and Co., 552, Pennywell-road, Bristol, for their catalogue, just issued, of 264 pages, profusely illustrated, and yet of pocket-size, will buy British stuff in future. The variety of wood work the firm is capable of supplying is amply shown by the illustrations and prices, which range from cottage doors to elaborate work in best Austrian oak, teak, mahogany, and other woods. A special feature is a set of designs—some elaborate, others inexpensive

CURRENTE CALAMO.

Mr. Kearn's paper on the cost of labour in connection with the erection and maintenance of buildings at the Surveyors' Institution next Monday evening, should attract many hearers. We are all so much interested that we shall print the paper in full; but it deserves to be heard, because the author is not a pessimist, and he will raise several points about which architects and builders worth their salt should have a word to say. For instance, in regard to day-work he is going to say one or two things well worth listening to, though whether they will make for "peace and quietness" we do not know. Anyhow, the shyness of the average quantity surveyor is so invincible that it is next to impossible in the ordinary way to get anything from him in the shape of an opinion, and Mr. Kearn's genial openmindedness marks a sort of epoch, and should be celebrated, as we trust it will be, by an appreciative and rousing discussion.

The long report we give this week in our Legal column of the arbitration between Messrs. John Barker and Co., Ltd., and the Hurlingham Club is worth the very careful study of every reader. Comment is barred by the fact that the case is still practically *sub judice*, as it has been decided to take the case to the Divisional Court. We understand that it is unlikely that it will be held there before the Long Vacation.

Suggestions—possibly *sub rosa*—from site-owners and others multiply in regard to the location of the proposed central building for London University. One wants it on the southern bank of the Thames, east of the new London County Hall, and, therefore, between Charing Cross and Westminster Bridges. Another is in favour of Gray's Inland gardens; but that stately pleasureance and its surrounding piles of decrepit buildings have survived many such suggestions. So far Mr. Niven's scheme, in our opinion, holds the field.

The twelfth exhibition of the International Society of Sculptors, Painters, and Gravers, at the Grafton Galleries, is mainly marked by the self-sacrificing or unavoidable self-abnegation of its members, not more than half of whom were represented, and those frequently by old work. Generally, it is a very miscellaneous assemblage, and the relics of the past of more or less distinguished painters are neither attractive nor inspiring. With the exception, perhaps, of Alfred Stevens' three contributions, "The Atelier" (1), "Femme au Tourterelles" (21), and "Pensive" (36), it is impossible to enthuse much over such examples as those of Sisley, Renoir, Manet, Courbet, Carrière, or J. F. Millets. There are not many portraits. The best are Mr. William Nicholson's group of "John and Arthur Fitzgerald" (7), and "A Barrister" (42). The first is worth better company! Mr. Walter Greaves' portraits of his two sisters (10 and 50) are well worth study, if disturbed by wonder how they came here. Anyhow, they are two of the most interesting things in the place.

Of Mr. A. Jamieson's three contributions, we like best his "Portrait of a Man" (42). Mr. Charles Shannon's "Wood Nymph" (39)

has, of course, been seen before, but is none the less welcome; and so, if in a less degree, are the two new works of Mr. Charles Ricketts, "The Flight of Cleopatra" (45), and "Job and His Comforters" (133). There is a quietly satisfactory view of "Leventon Cathedral" (54), by W. L. Bruckman, and another of "The Spanish House" (120), by Sydney Lee. The best of the few good landscapes is "Croisset" (86), by Mr. Alfred Hayward, and next to it we should rank Mr. Oliver Hall's "Westmoreland Peat Moor" (41). Those who like that sort of thing will doubtless congratulate Mr. Maurice Denis on his "La Plage" (113), a very overpowering decorative affair in the Centre Gallery; we do not! The Gravings and Drawings, generally, are a rather poor lot. The best thing among them is Mr. John Sargent's "Lady Lewis" (220). There is very little sculpture. M. Rodin's three small groups, of course, are all good; and so are Mr. John Tweed's three contributions. His "Lady Eden" (154), is one of the really most beautiful busts we have ever seen.

There was issued on Tuesday night the list of members of the Advisory Committee appointed under the National Insurance Act by the joint committee of the several bodies of commissioners for the purpose of giving assistance and advice in connection with the making and altering of regulations. The list of "Representative Employers and Associations of Employees" seems rather incomplete. Besides, Mr. John W. White, of the National Federation of Building Trades' Employers, and Mr. James Farquharson, of the Scottish Building Trades Federation, whose membership was a matter of course, the only other representative connected with our own great group of industries is Mr. Skinner, of the Easting District Slate Quarry Proprietors' Association. Where are the representatives of the great stone, brick, cement, timber, glass, and other industries, which surely are as vitally interested as the Welsh slate-quarry owners?

According to the *Daily Mail*, great crowds thronged the new London Museum's temporary home in the State apartments of Kensington Palace last Monday. It was difficult to get near some of the cases, particularly those containing the exhibits sent by the King and Queen and Queen Alexandra. The shoes worn by King Edward when an infant excited great curiosity, and the dolls made by Queen Victoria and dresses worn by her attracted such attention that visitors "moved on" only at the earnest entreaties of the attendants. "A crowd of schoolboys gazed with absorbed expression at the cells for condemned prisoners, the relics of crime that hang on the walls, and the Roman boat found in the bed of the Thames." Possibly the criticism of the Mayoress of Kensington was hardly so fastidious as the curator thinks. One of these days, doubtless, when the London Museum finds its permanent home, a good many of the present "attractions" will disappear.

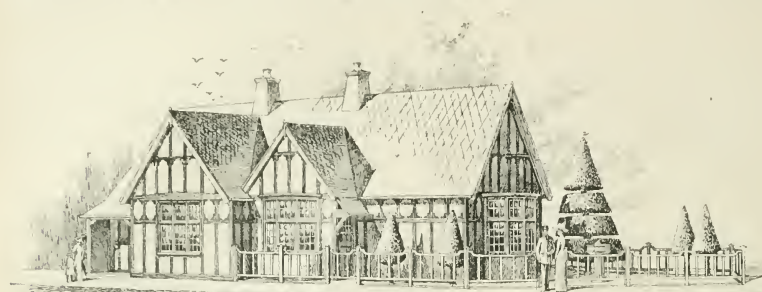
The London County Council, recognising its duty as the statutory authority for the preservation of ancient monuments in the Metropolis, has decided to insure that the façade and main internal features of Lindsey House, in Lincoln's Inn-fields, shall be retained intact. Lindsey House is of special interest, as it is now the only one remaining of the

original dwellings erected in the fields in the middle of the 17th century. Inigo Jones is generally accepted as the architect of the building, which has in its time been the home of a number of distinguished persons. Its site is a portion of the surplus land acquired in connection with the Kingsway improvement; but the County Council has decided that in any arrangements to lease the building provision shall be made for the preservation of its façade and main internal features.

Among the improvements and alterations that have been effected at Windsor Castle is the provision of a new suite of apartments for the Prince of Wales. This is to be situated close to the King's private apartments, and will comprise five rooms. When the alterations are complete all the most treasured belongings of the Heir-Apparent are to be placed there. The fresh quarters for the Castle fire brigade also are well in hand, while the extensive garage for the Royal motors that was determined upon by the late King is now in use. Wind-or will require but little attention during the next few years, though the renovation of the fabric is always more or less in progress; and the interior presents a much brighter appearance than in the days of Queen Victoria.

A curious kind of "trust" is said to have just been put into operation by house builders and contractors in Geneva. They have increased the rent of their tenants in flats and villas by ten per cent., and the extra money from this source is to be "pooled" in order to recompense the builders for their unlet flats and houses. Naturally, the population are up in arms against this measure; but as all the big firms of builders and house agents have come to an agreement, one is assured by the *Daily Chronicle*, the private householder has no hope of success, and must pay. In the meantime houses and flats in large buildings are springing up like mushrooms in all parts of the town. The inhabitants intend to appeal to the Government to legislate against this objectionable combination. Are the same builders putting up the new flats and houses, one wonders? If so, one understands the agitation. If not, there seems little need of legislation, and less inducement to owners in the half-empty, nearer London suburbs to follow Geneva!

At La Cornuña, in Northern Spain, may be seen a fire-tower which, we believe, with the exception of the ruins of the Roman lighthouse at Dover, the oldest of all such existing structures. The exact date of erection is unknown. The myths ascribed it to Hercules, whence its name—Torre de Hercules. Others say that the Phoenicians, who had established several colonies in Spain, erected this light-tower for their Northland cruises. It is more probable that the Roman Emperor Trajan (A.D. 98 to 117) erected this structure. Its inscription also mentions the name of Servius Lupus, of Lusitania, as the architect. The tower is built of ashlar, and is 9 metres by 40 metres. It has six separate stories, which can only be reached by a circular staircase around the exterior of the tower. The light-house was restored in 1684, but at the end of the 18th century was again in ruins. In 1797 it was rebuilt by the Spanish Government, and still sends forth its beams.



MESSRS. CATESBY'S BUNGALOW AT THE IDEAL HOME EXHIBITION.
MR. HY. A. WHITBURN, M.S.A., L.R.I.B.A., Architect.

MESSRS. CATESBY'S BUNGALOW AT THE IDEAL HOME EXHIBITION, OLYMPIA.

THIS thoroughly up-to-date bungalow should prove one of the most attractive features of the exhibition. It is an actual dwelling, with five rooms and large entrance-hall. The dining room and hall will have beamed ceilings and panelled walls. The front space will be laid out as an old Dutch garden. It has been designed by Mr. Hy. A. Whitburn, M.S.A., L.R.I.B.A., of London and Woking, and will be built by Mr. W. Harbrow, of Bournemouth.

The bungalow represents a most practical and picturesque form of country home, is spacious, yet compact, every bit of space being wisely utilised.

The bungalow will be specially built at the Ideal Home Exhibition, Olympia, for Messrs. Catesby's, Ltd., of Tottenham Court-road, London, W., and suitably furnished by them with the purpose of showing how well art and utility can be expressed by furniture that is not costly, but thoroughly well designed and made.

Prince Christian will unveil the memorial statue to King Edward VII., just erected in front of the hospital named after the late King, at Windsor. The statue was executed by Constantino F. G. G. G.

Messrs. Griffiths and Co., Limited, of Hamilton House, Bishopsgate, E.C. (the contractors who are carrying out the works under Contract No. 1) have been successful in obtaining Contract No. 2 (Hampton) and plating in connection with the Uppr Midway improvement.

The children's ward at the Royal Berkshire Hospital, Reading, which has been added as the children's hospital to King Edward VII., is practically complete. It has accommodation for twenty beds, and there is a balcony for open air training. At the side of the principal entrance the temple was built of Para marble and decorated with Corinthian columns. The Italian soldiers are searching the remains in the hope of finding the statue of the soldier which decorated the altar. Some inscriptions which figured on the front of the edifice have been discovered.

A message from Tripoli states that the vestiges of a magnificent temple, dedicated to Venus, have been discovered on Monte Merzoub, the scene of a desperate battle. The temple was built of Para marble and decorated with Corinthian columns. The Italian soldiers are searching the remains in the hope of finding the statue of the soldier which decorated the altar. Some inscriptions which figured on the front of the edifice have been discovered.

The Roman frescoes at Ravenna in the Basilica of Sant'Apollinare Nuovo have just been discovered. The old wall of the basilica had been darkened by the absence of the frescoes. Under the direction of the head mason of the British Museum, who was consulted on the matter by Mr. E. M. Rieu, the Guildhall librarian, the frescoes were carefully excavated, and the mason painted and treated with wax. The frescoes are a fresh and beautiful.

PROFESSIONAL AND TRADE SOCIETIES.

LIVERPOOL. ARCHITECTURAL SOCIETY.

THE annual report for 1911-12, submitted to the annual general meeting, Monday, April 22, states that the present membership consists of 53 fellows and 75 associates, a total of 128. There are also 3 hon. fellows, 8 hon. associates, and 21 students. A charge of unprofessional conduct by a member of the society in having undertaken work upon which another architect was already engaged was submitted to the council, and carefully considered and reported upon by the professional practice committee. The complaint referred to the completion of an unfinished building scheme. The council were of opinion that although the buildings had remained incomplete for a long period of years, that inquiries as to the authorship of the completed portion of the building should have been made before accepting any commission for carrying out any additions thereto, and a communication made to the architect of the original design with a view to allowing him an opportunity of approaching the client should he have so desired. They did not regard the fact that the order was unsolicited justified the acceptance of the commission without such inquiry.

It is proposed to erect a college chapel at Warrminster to the memory of the late Warden, Canon Sir James E. Phillips, who founded the St. Boniface College in 1870 for the training of young men for the mission field. So far, a small temporary iron structure has served.

The Paddington Borough Council call special attention of users of petrol to the great danger occasioned to the lives of the men employed in sewers by petrol being thrown or escaping into drains. They urge upon all inhabitants, whether using petrol for cleaning or motor purposes, the necessity of taking such steps as will prevent any quantity, however small, finding its way into the drains.

At the meeting of the Rushdale free libraries museum and art gallery committee on Wednesday week, the cooperation architect (Mr. W. H. H. H.) submitted several designs for the three panels with figures to be placed on the front of the art gallery extensions. There are three panels on the existing gallery. The selection of a design for the panels now required was left over till another meeting. Either of the suggestions of Mr. H. H. H. would cost about £50.

At a meeting of the Ayr Town Council on Monday a deputation of the Landlords' and Messrs. F. A. A. Association, it was stated, had attended a meeting of the Public Health Committee, and reported that there were then thirty houses known to them in the burgh vacant at and under £10. The deputation had pointed out that from 200 to 300 men who worked in Town Road in Ayr, as there were no houses available for them in the town. The council declined to make any recommendation until after the conference on town planning in Glasgow.

Building Intelligence.

ALPERTON.—The Bishop of London consecrated the new Church of St. James', Alperton, on Easter Eve, this being his first public appearance since his return home from the consecration of Khartoum Cathedral. The new church, which lies between Wembley and Perivale, provides accommodation for 750 persons, and consists of nave, aisles, a morning chapel being upon the south side of the chancel. The church is built of brick with red dressings and Casterton stone externally, with Farleigh stone internally, and plastered walls. The roofs are covered with hand-made tiles. A narthex extends over the west front. The cost is about £7,800. The architect is Mr. William A. Pite, F.R.I.B.A.

DUNFERMLINE ABBEY.—At the annual meeting of the heritors of the parish of Dunfermline, held last week, the Earl of Elgin, the chairman, said with regard to the stone-work of the Abbey church, which had been under repair during the year, that there never was any question of the whole of the new church tumbling down into the glen. The heritors decided to continue the policy of preservation under Sir Rowand Anderson's direction. In view of an application for permission to place a stained glass window in the church, the management committee had, it was stated, consulted Sir Rowand on the questions both of the size and figures in such windows and the colour tones, the object of the consultation being to secure uniformity, and also to prevent the light being unduly obscured.

EDINBURGH. The scheme promulgated for the extension of the Royal Scottish Museum will, when the Extension Bill of the Government is passed which has been introduced, probably make more progress than it has hitherto achieved. The extension scheme is divided into three parts, which will be carried out in rotation. The first provides for the enlargement of the main hall southward, as also to provide for the extension of the natural history departments in the same direction. To enable the main hall to be extended in this manner it is necessary to appropriate that part of the museum, right opposite the main doorway, which is occupied at present by the directors' and curator's rooms and administrative department. The first thing, therefore, to be done was to build a new administrative block, and this is now in progress on the south side of what is at present the main hall, where the metallurgical exhibits are placed. According to the estimate, this new administrative block will cost about £6,000. The extension of the main hall southwards will give a fine vista from the main doorway, and the walls of the new extension will be available for such purposes as

the exposure of large architectural drawings, which cannot be seen now for want of wall-space upon which to hang them. The extension of the natural history galleries in three stories will put about double the space available for this popular department of the museum. According to the printed estimates, this first part of the scheme will cost (independently of the administrative block) £47,500. The second part of the scheme provides for the extension, also southwards Brighton-street Chapel, of the machinery-hall, as also the building of a lecture-hall at the south-east corner of the museum, with entrance both from the museum and Lethian-street. The third part of the scheme relates to an extension of the other galleries generally so that provision may be made for the necessary expansion of the collections exposed in them. The third part of the project may apparently be described as a "future" extension.

HEREFORD.—The formal opening of the Hereford Art Gallery and Free Library Extension takes place to-day at 3.30. The new building, which is Later Renaissance in design, has been built in brickwork with terracotta mouldings and finishings: Length 58ft., width 42ft., height from bottom of foundations to apex of roof, between 70ft. and 89ft. The ground floor consists of a room which will be used as a reading room and reference library, with an office for the librarian, and a room for magazine readers. The art gallery is on the first floor, and is approached through the museum room. Its internal dimensions are 58ft. long, 38ft. wide, and 25ft. high. Under the new building a basement has been built to serve as a general store room. The architects for the work were Messrs. Grouse and Pettington, of Hereford, who were architects for the Kenble Theatre, which adjoins the library, and also the Hereford Garden City. The building contractors were Messrs. E. W. Wilks and Son. The total expenditure slightly exceeds £3,500.

SHERINGHAM.—New offices for the urban district council have been opened at Sheringham. The structure is of red brick with stone dressings. The entrance is at the corner, up stone steps, into a red-tiled lobby. From this, through central swing-doors, access is had to the main building. To the right and left of these swing-doors are the general inquiry office and the rate collectors' office. Passing through the doors and along the corridor is the right of the surveyor. A spacious staircase leads on to the next floor to the council chamber, with on either side of it two smaller rooms, available for committees. All the rooms are block-floored and fireproof. Messrs. Stanley, Simons, and Co., of Sheringham, were the architects, and Messrs. Blivh and Son, Sheringham, the contractors, the accepted figure for the building being £1,285.

STAFFORD.—The Stafford town council have adopted a cottage building scheme for the provision of twenty working-class dwellings. The cottages will consist of one living room, 12ft. 3in. or one kitchen, 12ft. 3in.; pantry, coal-house, and w.c.; cooking range, sink, and washing copper; three bedrooms and two bedrooms alternately. The gardens will have an average depth of 52ft. Taking the cost of the erection of the houses at £3,200, the interest, ground-rent, rates, and water rent, insurance, income-tax, renewals fund, etc., will make a total annual charge of £194 15s. With the weekly rental of 4s. for the three-bedroom houses and 3s. 6d. for the two-bedroom houses, the total annual rental will be £195. On a 3 per cent. basis the sinking fund will amount for 30 years to £37 5s. 3d. per annum, and for 40 years to £42 8s. 10d. per annum. The council laudably wants to raise the tone of the town, and by building these twenty houses hopes to set a good example to owners to keep their property in proper repair.

STOKE-ON-TRENT.—At the last meeting of the Stoke-on-Trent Education Committee the tenders in connection with the erection of the new Central School of Science and Technology were opened and considered, and

it was recommended that the tender of Mr. T. Godwin, of Hanley, for the erection and fittings of the new Central School of Science and Technology, in accordance with the plans and specifications and bills of quantities prepared by the architects and quantity surveyors, for the sum of £17,100, be accepted; that the tender of Messrs. Lowndes and Co., of Leek, for the provision and fixing of the heating apparatus in connection with the new Central School of Science and Technology, in the sum of £508, be accepted. The chairman reported that Mr. Edwin Lawton, of Richmond-street, Penkull, has been appointed clerk of the works. The tender in connection with the provision and erection of two portable temporary schools for the Hanley district were opened and considered, and it was recommended that the tender of Messrs. F. D. Cowieson and Co., for the provision and erection of a portable temporary school to accommodate 300 children, in accordance with the specification as prepared by the architect, in the sum of £935, be accepted, and that the tender of the Alwath Foundry and Engineering Company, Ltd., for the provision and erection of a portable temporary school to accommodate 295 pupils and children, in accordance with the specification as prepared by the architect, in the sum of £425, be accepted.

TODMORDEN.—The picturesque park at Centre Vale and the commodious new Secondary School on the Etile estate, have been opened. In addition to charming field and woodland, the park embraces the town's cricket-field, two spacious mansions, cottages and farm buildings, two lodges, and a beautiful expanse of woodland known as Buckley pool. The new school provides accommodation for 295 pupils, and comprises domestic science room, gymnasium, manual instruction workshop, dining-room, spacious assembly-hall, classrooms, book stores, chemical and physical laboratories, art rooms, etc. The architects have been Mr. Jesse Horsfall, of Todmorden and Manchester (who died while the building was being erected), and Mr. J. E. Stott.

CHIEFS.

The Hawick Town Council has decided to build a municipal lodging-house at an estimated cost of £1,000.

The Local Government Board have sanctioned a loan of £8,700 for extensions of building and plant at the Rochdale electricity works.

A new east window is to be presented to Minstead Church. It is the work of Messrs. Jackson, of London, and the subject—"The Women at the Sepulchre."

The new drill-hall, Ramsey, Hunts, has been opened. The premises are the old Wesleyan chapel and schoolroom converted. Messrs. Thackeray, of Huntingdon, made the alterations.

The Diocesan Church Building Society has made a grant of £50 towards the cost of building the church at St. Andrew's, Deal. The plans have been formally passed by the Diocesan Committee.

A collection of paintings, architectural drawings, and sculpture, containing specimens of the work of all the members and associates, has been presented to the King's, by the Royal Academy, as the Royal Academy's Coronation gift.

The first to be submitted in Scotland, a town-planning scheme for the Rosyth (Forth naval base) area, was on Wednesday the subject of a Local Government Board inquiry at Dunfermline. The Local Government Board inspector reserved judgment.

The Treasury have sanctioned the payment from the Government Fund of £2,500 a year for three years, to be distributed by the Board of Agriculture as grants to certain institutions in England and Wales, to enable them to supply technical advice to landowners and others interested in forestry.

The new postal sorting-office in Weston lane, near Hereford, will be opened by the district surveyor of the Post Office on Monday. The new building, which adjoins the railway station, is one of the finest and best equipped sorting-offices in the North. The surveyor will be presented with a gold key as a souvenir of the occasion.

Correspondence.

"SPECIALIST OR SUB CONTRACTOR?"

To the Editor of the BUILDING NEWS.

SIR,—Hearing that my recent article under this heading, in your issue of March 22, has aroused much interest amongst your readers, and, in reply to several correspondents, there is one point I desire to make even plainer than I did before. The ordinary building contract can only be binding and effective as between the parties by whom it is made. It follows, therefore, that as regards third persons who are outside that contract, and may not even know of its existence, and still less of its contents, the ordinary law, especially that of principal and agent, has to be applied. Now, whatever may be set out in the contract does not affect those who, outside its provisions, deal with the building owner through his agents, the architect or the general contractor. When work or goods are specified by the architect, and he gets the estimates, he, in fact and in law, acts as agent for his principal, the building owner, in so doing. The subsequent sending of the formal order to this specialist by the contractor does not alter the fact that the specialist has already made a contract with the architect, as agent for the building owner as the real principal, whether disclosed or not. If all goes well, and the contractor pays the specialist, no legal point arises; but if he does not, then the specialist comes back upon the building owner, to whom, through his architect, he has already given credit. The only way I can see of guarding against this risk to the building owner is to make the specialist enter into a separate contract with the general contractor when he supplies the goods or does the work, whereby he will agree to give credit to, and look for payment from, this contractor only. The confusion has, of course, arisen from the habit of putting these specialists into the contract as being sub-contractors, and in law they may not be so, but in this way that the elementary legal rules regulating the relations between principal and agent and third parties have been obscured and disregarded.

While writing, perhaps I may refer to the letter signed "Justitia" in last week's issue, headed "Wanted—A Legal Defence Association." From my reading of recent decided cases, it would certainly seem as if both building owners and architects, or the agents, did need some legal advice in carrying out their business. But there is the Institute, and also the Society; and I always thought one feature of their work was the legal aid and defence of their members. It would seem strange if a third body had to be incorporated for this purpose. Perhaps the Society of Architects, as being the younger and perhaps more business-like corporation, could be induced to devote practical attention to this side of its activity, and so advise its members on simple legal matters before they found themselves launched in loss, in litigation, or both?—I am, etc.

THE WRITER OF THE ARTICLE.

April 9.

WANTED, A LEGAL DEFENCE ASSOCIATION.

SIR,—I agree as to much put forward in your last issue by your correspondent, "Justitia," in regard to the great injustice often resulting in building disputes and technical cases, in which, architects are doubt, get very unfairly treated in damages and costs, even when the tribunal itself before whom the trial is conducted expresses, through the presiding judge, a full sympathy with the architect in question, as in the recent well known and cruel case on the liability for dry rot which went against Mr. Trollope.

The constitution of a Voluntary Protection Committee such as "Justitia" advocates has, as a matter of fact, been long since anticipated—at any rate, to a considerable degree

—by the Board of Professional Practice and Defence at the Royal Institute of British Architects, and in a large number of disputes and instances in which architects are involved the Board has given advice, though funds do not seem available to undertake financial responsibilities by way of taking up cases on behalf of architects. Voluntary evidence and expert opinion, without charge, can be obtained, much to the advantage of all concerned. It may be fairly urged, perhaps, that expedition has not been a distinguishing characteristic of this Board of Defence at Conduit-street; but even your correspondent's "Architects' Protection Committee," like all other bodies of this kind, might be deficient in alacrity, and it is very often in the initial stages of a quarrel that reliable advice is most urgent, and support is most beneficial. Later on, when the lawyers get to work, the oyster falls to someone else, while the shells alone remain for the litigants. I fail to see how this proposed scratch committee would better the Board at the Institute, though I do think improvements might be made by developing its scope and opportunities. Nevertheless, the question of paying a fee would be obviously out of the question. Perhaps someone might show how this development could be inaugurated to make the Board more a living power and source of professional strength?—I am, etc.,

A VETERAN ARCHITECT.

Maudy Thursday, 1912.

PUDLO.

STR.—We shall be glad if correspondents who write for information with reference to Pudlo, which makes cement waterproof, will kindly note that cement with Pudlo is just the same as cement without Pudlo, except that the rendering or cement is absolutely waterproof when the powder Pudlo is mixed with it, and that the rendering or concrete will never show any efflorescence.

Many people ask whether Pudlo makes the work greasy, or whether it affects the setting of the cement, and to all these questions we say, No! The cement is just the same, whether the Pudlo is or not.—We are, etc.,

KERNER GREENWOOD AND CO.

King's Lynn.

DECORATIVE PLASTERWORK.

STR.—I enjoyed your report of Mr. Bankart's recent lecture. I have had the pleasure of seeing most of the examples of decorative plasterwork, illustrated by Mr. Bankart, at Hampton Court, Burton Agnes, Castle Howard, Duncombe Hall (previous to its destruction by fire), and many of the hand-modelled ceilings in the city of Dublin (Gred, etc.), but my forty years' experience as a practical bricklayer and plasterer I have seen nothing to equal the ceiling of the dining-hall at Halmaby Hall, Yorkshire, the seat of Sir W. P. Wilson Todd. As the hall now stands, it is supposed to have been built by a member of the Milbank family towards the close of the reign of James I. from designs of the celebrated Inigo Jones or one of his pupils.

The dining room is 40ft. long, 25ft. wide, and 14ft. 6in. high, and the decorative plasterwork was done by Italian plasterers; but the style of the decorations seems of Louis XV. period. Above the architrave, in the frieze of the cornice, there are beautiful enriched modillions in pairs, and below the architrave projects as a base, with return mitres and artistic little fluted drops beneath. Between the pairs of modillions there are the most beautiful examples of hand-modelled fruit of all descriptions; also vines, flowers, roses, and foliage.

It is beyond my power to describe the beauty of the ceiling, which is so chaste an example of the plasterer's craft, as each corner the heavens seem to open, and from the most delicate clouds emanate beautiful modelled cherubim, as if flying to the four points of the compass, indicating the various seasons. At each side of the centre of the ceiling is a most excellent bust of the goddess of music, surrounded by the harpist-herd, the lute,

the violin etc. The centre is filled in with magnificent scrollwork of fruit and foliage, of beautiful design and workmanship. All this work has been built up and modelled in situ. The walls are also panelled and filled in with garlands of fruit, flowers, vines, etc. I have known Mr. George Stubbins, modeller and sculptor of York, imitate this class of work and execute it for various clients. He chalks the design with charcoal in free-hand on the walls, and then models it in situ. The floor of the dining hall at Halmaby is of lime concrete, marked in squares of 2ft., and at the intersections of these points a black marble square is laid diagonally. You would almost think the floor was paved with polished Portland or Huddlesstone stone. The floors of corridors and the main stairs landing are also of lime concrete 1½ in. thick, laid on hand-riven laths nailed to the oak floor joists. I enclose a piece of this concrete, which I consider is much more homogeneous than the ferro-concrete of to-day.

In the small drawing room we had to insert a secret door, which necessitated taking part of the panelling off the wall, and we had to form another panel over this door. In refixing the moulding, it was impossible to saw through it after a groove was made by the saw, so the plasterers had to chisel it, just as a mason would a piece of marble.

About eighty years ago Halmaby Hall belonged to the family of Mr. John Todd, of Tranby Park, Yorkshire. He had the beautiful ceiling of the drawing room taken down, and a very heavy, massive, decorated ceiling put up, with the crest of arms of the family, etc., out of character altogether with the noble edifice. The present heir, Sir W. E. Wilson Todd, who is very artist in taste, is going to have it taken down, and a new ceiling put up to harmonise with the general character of the other decorative work. The architects for the alterations (Messrs. Clark and Moscrop, of Darlington) and myself have prevailed upon Sir William to employ Mr. Bankart to design and model the new ceiling for the drawing room.

In the north-east bedroom on the first floor the bed, and also the beautiful mahogany bedstead, which Lord Byron occupied, was married to Anna Isabella, the only daughter of Sir Ralph Milbank (then the owner of Halmaby Hall) on January 2, 1815, at Seaham Harbour, and Byron and his bride repaired to Halmaby Hall for their honeymoon. The poet was then in high feather, jocular and happy.—I am, etc.,

ANTHONY LYONS (Clerk of Works.)

SAINT ISAAC'S CATHEDRAL. AT SAINT PETERSBURG.

STR.—In your last week's issue a statement from the *Daily Telegraph* is quoted, in which a correspondent asserts that this grand building is doomed to collapse in the near future. Of course, we all know that, like Winchester Cathedral, prior to the recent renovation to the foundation there, Peter the Great's capital (built in A.D. 1703) stands largely upon marshy ground, and, like picturesque Amsterdam, rests more or less upon wooden piles. But I deny the statement that its cathedral "columns are built of brick coated with granite, and are suddenly crumbling because the brickwork is pulverised." Towards the latter end of the year 1908 a series of illustrated articles, written by myself during a visit to St. Petersburg and Moscow, appeared in these columns. In the issue for November 27 of that year I gave a general description of St. Isaac's Cathedral (known in that country as the "Isakovskiy Sobor"), and therein refer to the superb pillars in question as follows:—

"The forty monoliths at St. Isaac's are all of Flourense granite, a warm coloured stone not altogether unlike our Aberdeen. They are respectively 60ft. high and 7ft. in diameter, computed to weight 128 tons apiece. Their bases are 8ft. 4in. square and 3ft. in height. These, together with the Corinthian capitals the leviathans support, are of solid bronze. The principal portal is on the south side, and possesses a double row of columns (16 in all). The other portals have

eight. I have examined them carefully, and, with two exceptions, these grand examples of masonry are quite free from flaws. The couple that are not, most unfortunately (with stupid perverseness all too common amongst workmen everywhere), have been fixed so that their imperfections, comparatively slight as they are, stand just where they are most in evidence. This is upon the south-east main approach. There, facing outward (perhaps at an altitude of 40ft.), on the corner pillar, a most beautiful is the face of the shaft about 10ft. high by 1ft. in width. On the next column, at a similar height from the ground, is a large, ugly end-hole, 3ft. by 1ft. If these blemishes at the time of erection had been placed facing inward, instead of in their present position, not one person in a thousand would have discovered their existence. As it is, they are almost the best thing that catches the practised eye. The plain plinth, rising 6ft. 4in., upon which the whole fabric rests, is of the same kind of polished granite as are the columns themselves. The rest of the edifice is built of a light mottled marble."

It is positive fact that St. Petersburg, architecturally speaking, is not only a city of palaces, but also, to a large extent, one of shams. The Winter Palace, for instance, with its noble frontage of 155ft., as well as the stately buildings that flank and practically surround it, suggest being built of a warm coloured stone, such as Danby; but, on close inspection, to one's infinite disgust, it is discovered all are of brick painted a blazing red! Much the same may be said of numerous other imposing-looking erections in various parts of the city. Noble colonnades, whose supporting columns might reasonably be supposed to be granite, are nothing more or less but brick coated over with compo.

St. Isaac's Cathedral was designed by M. Monferand, an architect who, it is recorded, spent £200,000 upon its foundations alone. The cost of the whole structure amounted to £3,250,000. The granite columns occurring upon its four stately portals have long been the admiration of the world. It is as well, in leading to assert these are of brick as it would be to say the monoliths erected to the memory of the Emperor Alexander I., standing in the midst of the Palace-square, is also a fake! It was placed in situ under the direction of M. Monferand (architect of the cathedral) in 1852. The stone when quarried originally measured 102ft. long by 14ft. in diameter, but was shortened by the architect prior to its erection some 18ft., so it is now 84ft. in length. It stands upon a base (also a single block of granite) 25ft. square. Inclusive of the bronze angel that surmounts the whole (the latter made of captured Turkish cannon), the entire height is 155ft.—i.e., 10ft. higher than is Nelson's Column in Trafalgar-square. In later years a long flaw has opened out in the higher part of the monolith, and this extends a considerable way down the column.—I am, etc.,

HARRY HEMS.

Fair Park, Exeter April 6.

PARLIAMENTARY NOTES.

Moving the second reading of the Public Offices (Sites) Bill on Wednesday, Mr. Wedgwood Benn explained that the object was to secure a site for the Board of Trade, which was at present housed in several different places. The site proposed was between the Embankment and the Horse Guards Avenue.

The death took place on Saturday at The Edge, Leach-road, Tooting Common, S.W., of Mr. Thomas Robert Manquill, R.L., at the age of ninety-two.

The new Clare College Mission Church, Rotherhithe, has been dedicated. The church is of very simple design, carried out in unadorned, faceted reinforced concrete. The architect is Mr. J. W. Simpson.

At a meeting of the West Ashford Rural Council on Wednesday week, the tender of Mr. Dixon, amounting to £207 14s., was accepted for the Snaresden drainage work. One other tender was received, this being from Mr. Knock, of Ashford, for £210.

Our Illustrations.

LLOYDS BANK, OKEHAMPTON.

The Bank at Okehampton, of which we give two photographs, is built for Messrs. Lloyd in Beer freestone for the dressings, and infilling of cement roughcast, with the recessed quoins of smooth cement. The roofs are covered with green Westmoreland slates. The banking-hall fittings are of teak, with plaster columns. The general contractor for the work was Mr. G. K. Blatchford, Mid-

front, a series of cherub-heads with folded wings form the supporting members, the intervening space being enriched with flower swags or garlands, subordinated to the rhythmic lines of a rather unusual treatment of scrollwork. The more solid parts of the carving are built up in oak, while limewood, glued or nailed on, is used for the lighter portions. Each figure varies from its neighbours in pose and arrangement, and the whole work is executed with great vigour and masterly appreciation of the point of view from which the carving is to be seen. A logical thoroughness of design makes the

COMPETITIONS.

GLASGOW.—The protest of Glasgow architects against the employment of the city engineer to carry out the extension of the municipal buildings has borne fruit. At the last council meeting a resolution was proposed by the chairman of the buildings committee to adopt one part of their report; but he said there was a subject on which they were not unanimous, and that was whether they should have an open competition and invite outside architects to prepare plans, or whether they should employ the architectural staff of the corporation. In the preparation of the report, Mr. Houston, the architect in Mr. McDonald's office, had been constantly employed for several weeks, and he had shown a mastery of his subject which was beyond praise. That being so, was it reasonable that he should be thrown aside when it came to the appointment of an architect, feeling, as Baile Mason did, that he was capable of producing plans which would satisfy all their needs. Mr. Houston and Mr. Horne, the two architects in Mr. McDonald's office, were among fifteen competitors who gained premiums, and whose plans were selected in a recent competition for new buildings for the London County Council, costing somewhere about £1,000,000. That alone stamped them as men of the highest standing in their profession. An open competition would mean increased costs for architects' fees and prizes to competitors, and a delay of at least six months, which, he thought, was very serious at this stage, as part of their ground was at present lying idle. Dr. McConnell seconded. If, he said, they went outside for an architect it would mean an increased expenditure equivalent to an increase of about 1d. per £1 on the rates. Past experience had shown that the corporation architects had not only kept within their estimates, but that the work when completed had given entire satisfaction. Mr. Carlton moved an amendment that competitive plans and designs be invited from outside architects for the erection of the buildings. In an important contract like this it was imperative that they should have the most skilful and experienced architects they could obtain. The amendment was seconded, and carried by 30 to 27 votes, so presumably competitive designs from outside architects will be invited.

KING EDWARD MEMORIAL, CAWNPORE.—In this competition, B. Ram Rup Sharma, head draughtsman, University Building Division, P.W.D., Allahabad, has been awarded the prize.

PORT OF LONDON AUTHORITY'S NEW HEAD OFFICE.—In response to the competition announced in November last, inviting the submission of preliminary sketch designs for new head offices for the Authority, 170 designs were received. The Authority, on the advice of their assessor, Sir Aston Webb, C.B., R.A., have selected the six designs sent in by the following architects:—Mr. Robert Atkinson, A.R.I.B.A.; Messrs. J. A. Bowden and T. Wallis; Mr. Edwin Cooper, F.R.I.B.A.; Messrs. Lanchester and Rickards, F.R.I.B.A.; Mr. J. Reginald Truelove; Mr. Ernest W. Wray. The authors of these designs will be invited to take part in the final competition, at an honorarium of two hundred guineas each. The authority do not propose to exercise the right they reserved to themselves of inviting designs from architects other than those who took part in the preliminary competition.

The Caerphilly Urban District Council has given instructions for plans for new council offices to be prepared.

The contract for the complete installation of lifts for the Institute of Civil Engineers' new building, London, has been entrusted to Smith, Major, and Stevens, Ltd. of London and Northampton, their Standard machine with Vee-wheel drive, which renders overwinding impossible, having been selected after investigation of the merits of other types. The three main passenger lifts will be fitted with their patent full automatic butt system of control, which has gained a wide reputation for reliability and accuracy of stopping at floor-levels.



CHOIR STALLS, ST. PAUL'S CATHEDRAL.

(For Details, see Double-page Plate.)

Devon Joinery Works. Messrs. Horace Field and Simmons, J. Lougham Chambers, Lougham-place, W., were the architects.

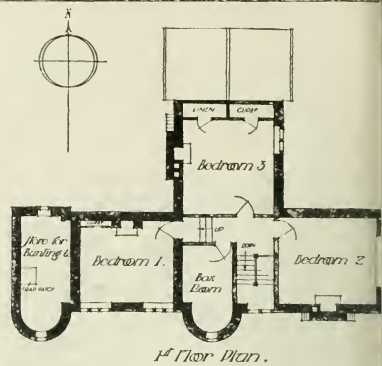
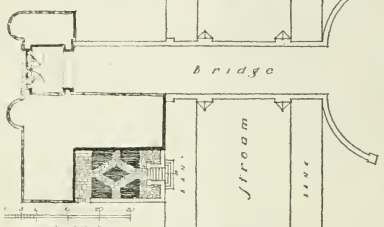
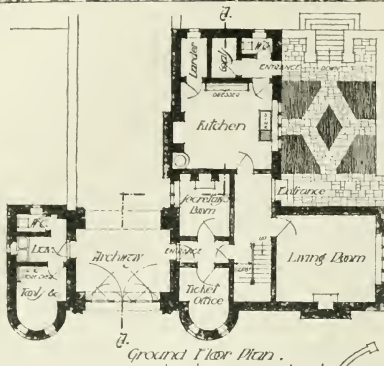
ST. PAUL'S CATHEDRAL: DETAIL OF UPPER PART OF CHOIR-STALLS.

The choir-stalls and organ-case of St. Paul's Cathedral, designed by Sir Christopher Wren, and carved by Grinling Gibbons, are acknowledged to be the finest Late Renaissance stallwork in Europe. The design of the stalls takes the form of a series of panel divisions, with a continuous projecting canopy over this feature, forming the front of the upper gallery. This canopy-work is carried on brackets, every alternate one being enriched in the form of a cherub with outspread wings. Above, on the gallery

detail, even in the darkest corner, worth examining. Sunlight, necessarily, is rare inside the choir of St. Paul's; but when its rich carving is illumined by an errant ray, the cherub faces seem to glow with a quaint, solemn gladness such as Gibbons alone knew how to render. Our pencil illustrations were drawn by Mr. J. Craigie Bone, of Edinburgh, who has likewise lent us the accompanying specially-taken photograph reproduced herewith, to give a perspective key to the parts shown at large by these excellent sketches of the detail.

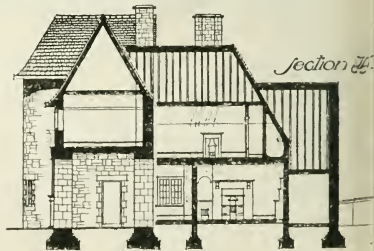
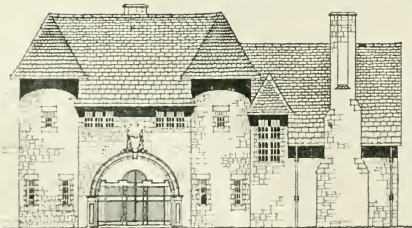
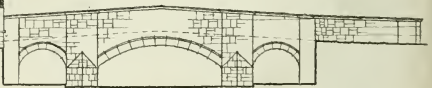
DESIGNS FOR A STONE BRIDGE AND TOLLHOUSE.

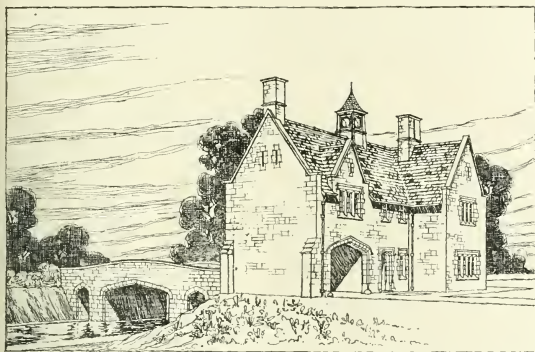
For a description of the two double-pages carrying the three designs, see our assessor's report on p. 515.



PLACED SECOND

"Building News" Designing Club
Design for
A Stone Bridge and a Tollhouse
by
"My Art"



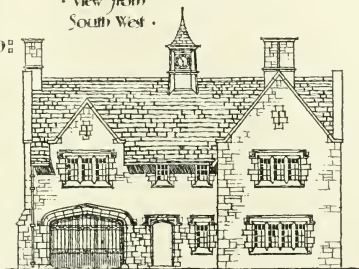


• View from
South West •

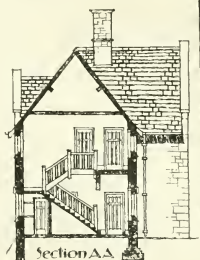
Building News Design Club:

Design for
A Stone Bridge
and Toll-house

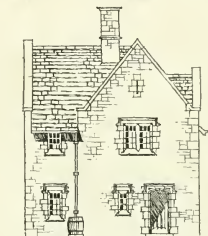
By LIVER, April, 1912



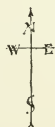
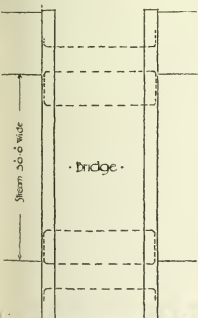
• South Elevation •



Section A.A.

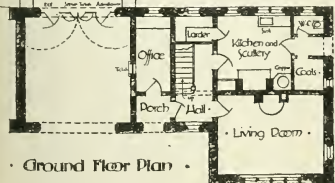


• East Elevation •

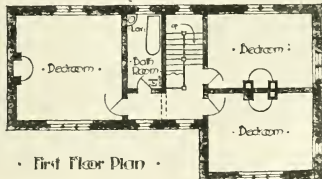


• West Elevation •

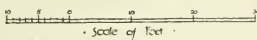
PLACED THIRD



• Ground Floor Plan •



• First Floor Plan •



• Scale of Feet •

also for permission for the claimants to visit the premises to make up an account. This was refused in each case. Notice of dispute was then given to the arbitrator, and a preliminary sitting was given by the arbitrator, Mr. C. F. A. Poland, of 6, John-street, Bedford-row, W.C., that a dispute had arisen, and he was requested (1) to order the respondents to produce the items as contained in the claimants' letter, and also to order the respondents to give the claimants access to the premises. Mr. T. Woodbridge Biggs represented the claimants, and the respondents were represented by Mr. Robert Smith, LL.D. At this preliminary hearing no evidence was called. In due course the arbitrator published his interim award, in which he recites the terms of the notice of dispute. He orders that the contractors were to be at liberty to go upon the site for the purpose of measuring up the said works, that the respondents are to give the details of certain items which he defines in his award, and further gives directions to the contractors as to what should be done on the site, which is that the claimants should supply to the respondents a copy of the account, which they were to prepare. Learned counsel contended that the arbitrator had no jurisdiction to do this, and that the respondents were to supply the account. The account was duly delivered to the solicitors, and it shows a balance due to the claimants of £963 17s. 9d. The architect had, it is alleged, in his drawings and Specification Notes omitted to describe the roof over the lavatory; and the alleged omission was alleged by the architect's assistant and the claimants that, in consideration of a long circular wall being reduced in thickness, there should be no charge made for the roof over the lavatory, for which the architect was charged including this roof, and the one adjoining entirely different to the one which was included in contract. The architect in his account claims for a reduction of the thickness in the wall, and refuses to allow for the roof, claiming that he has power to make deductions without a written order, but no power to add for any variation or substitution. The respondents, by their counsel, say that they admit that there are extras and variations, but as the contractors have not given evidence in support of their claim in contract, they consider each variation and extra that they are not entitled to claim, and that in the face of Clause 13A, no variation involving an extra shall be carried out without a blue order signed by both the architect and the employer. They say, however, a sum included in the contract of £150 for contingencies, and it is suggested that this sum cannot be dealt with without a blue order. Further sittings were held at the Royal Courts of Justice. Mr. Woodbridge Biggs appeared for the claimants, and Mr. Robert Smith for the respondents, on April 12, 13, 14, 15, 18, 19, 20, and 25, 1912, during which counsel put his objections. Upon these arguments the arbitrator gave two rulings, one as to what works he could order and how they should be carried out, and the other as to what accounts he should use, whether the one prepared by Messrs. John Barker originally, or whether the account prepared in conformity with the Interim Award, should be the one to be used in the reference. At the board meeting of 26th March, John Barker, in the 3rd inst., it was decided, after having considered the arbitrator's rulings and counsel's opinion, to take the matter to the Divisional Court. The following are the arbitrator's two rulings:—

FIRST RULING.

I have been requested by the counsel representing the Club to give a ruling on certain points arising on the Articles of Agreement and on the contract, and on the drawings and other documents, which, in my view, have to be read with the contract, namely, the Schedule of Conditions of Contract (hereinafter called "the Conditions"), and the specification and drawings referred to in the contract. The question is mainly contained on page 66 of the printed report of the second day's proceedings of the arbitration. I say mainly, because from Mr. Smith's previous arguments and remarks from his replies to my legal adviser on the 2nd day it is clear that he did not intend to confine his request to an interpretation of Clauses 1 and 13A, but that he wished for a general ruling on the proofs that I shall require in support of the claims for further payments that are put forward by Mr. John Barker, who is Mr. Smith, Limited (hereinafter called "the Contractors"). On the other hand, as the Hurlingham Club (hereinafter called "the Employers") make claims for repayment from the contractors, I think I consider it further necessary to state what proofs if any are necessary to support the claims for repayment made by the employers.

Now, though I am not bound, and in many cases I should deem it inadvisable to give any reasons for the principles I am about to enunciate as guiding my judgment in this case, yet having regard to the complications of a particular case, and in view of the fact that the arbitrator is bound to give some explanation of the way in which I view the case as a whole, so that the reasons for my future rulings may be clear to the parties concerned. First, then, I have given careful consideration to the contract, and also to the specification and drawings which are referred to in the contract. I have endeavoured to extract from those documents what the true intention of, and agreement between, the parties to the contract was, and my decision on the matter have not arisen from any decision on the loose sense with which certain expressions are used in the contract, conditions, and specification, and to certain apparent contradictions in those documents, or some of them. Wherever such apparent contradictions do occur, I have thought proper to give the greater weight to the contract and conditions than to the specification. The specification was a document which was in existence before the contract, and which, were signed by the contractors (and other parties) based their estimate. It is mainly, though not entirely, a description of the work to be done, and in my view where, and in so far as it contains terms as to the conditions which are to be done, and those terms are at variance with many of the terms contained in the contract and conditions subsequently entered into between the parties, the terms contained in the contract and conditions must prevail. I am, however, in one point to which I will refer specifically hereafter, the terms of the specification and contract and conditions can be read together and without bringing the one document into conflict with the other, but in the more to this view (namely, that the terms of the contract and conditions prevail over the terms of the specification) by the way the specification and the drawings (the latter of which contain, in one word) are referred to in the contract itself. They are said to describe the work to be done—the works are said to be shown upon the drawings and described in the specification. No word is said in the contract to the effect that the drawings are to be used in the specification, and from these causes, and from the very nature of the word itself, I consider that document to be mainly descriptive of the works to be done, and not so much of the terms on which they are to be done. I consider, and I am, therefore, to the contract and conditions, and consider first the true intention of the parties with regard to them, and next the interpretation of certain expressions in these two documents which appear to be difficult of construction and appear to be in conflict in certain circumstances. This contract, then, is an agreement to do for a fixed price, named in the contract, the works described in the specification and shown on the drawings. But it was, in my opinion, clearly within the contemplation of the parties that the specification and drawings might not describe the works with the exactitude necessary to enable them actually to be carried out in the way which was in the mind of the expert (the architect) who prepared the specification and drawings, and that the architect might be called upon to make further provision when he saw the work itself in process of being carried out, desire variations, alterations, or even further works to, or actual omissions from, the original work, and that the parties might be moved from motives of economic convenience. The employers, being laymen, had placed themselves in regard to the specification and drawings in the hands of an expert, in whose hands, so long as they obtained the results they desired, they were content to leave the work, and they desired to remain, and they did not wish to concern themselves with the interior details. They gave the architect, as the contract and conditions show, a wide and complete discretion to deal with all matters of detail, and in many instances they invested him with sole and complete authority. It is not to be supposed that the employers were capable of interesting themselves in mere details of specification or plans. They contracted and expended their money in a completed state of view, and they contemplated that the architect would view a very wide and complete discretion as to all matters of detail. And the contractors accepted and agreed to that discretion, and

being experts, on their own behalf, were competent to meet and deal with the architect as the expert on behalf of the employers. It is, though, as I say, the employers were not concerned themselves with mere questions of details in the execution of the works, there was one matter in respect of which by the terms of the agreement between themselves and the contractors, they desired to retain as far as was possible and convenient, complete and absolute power, and in respect of which they were not willing to delegate anything to the architect. Though not concerned with the methods of working out the specification and drawings so long as they retained their power, and so long as they remained in contact with the works were kept in contact) they did concern themselves with the financial results of such methods. They bound both the architect (their own employee) and the contractors in the strictest fashion, so that there should be no known or realised increase in expenditure which was not approved by themselves. Wherever an increase of price was concerned they retained personally all their powers, and delegated none. A decrease in price did not make any difference to them, in fact, it was solely an advantage to them so long as it did not involve a departure from the main and essential features of the works. But they were not prepared to "interfere" with the architect's power to take effect at the desire alone of the architect (however proper he might consider it). In this respect they bound both the contractors and the architect by various clauses culminating in the special and binding clause, Clause 13A, to the same time they realised that there might be cases where it would, or might, be a matter of genuine dispute as to whether any particular requirement of the architect (within the discretion given him) might be a matter of dispute, should be revealed by way of drawing, detail, instruction, direction, or explanation involved work extra to that comprised in, or to be reasonably inferred from, the specification and drawings. They realised that where such a dispute arose between the architect and the contractors, to permit work to be stopped pending its settlement, and they therefore agreed by Clause 1 of the conditions that, subject to certain exceptions, to make it clear that a dispute was actually in existence, the work might continue, and the dispute with all other differences flowing from it should be decided by an arbitrator at a later date. But while they were willing that the decision of a third party should be deferred to a later date, even though it might involve in the future a payment by them outside and beyond that which they had already bound themselves to make, they were equally determined that in cases where no such dispute had arisen, they would know what any extra payment would amount to before they were ready to make themselves legally liable for it. With this end in view the employers inserted Clause 13A, a clause which is, in my opinion, the complete answer to the contention of the contractors, the three other clauses, Nos. 5, 12, and 13, all of which contain machinery for dealing with cases where extra payment on the part of the employers would be involved. And in its turn Clause 13A has no relation to, and does not affect, the particular class of cases which I have above referred to which exclusively fall under Clause 1. There is, however, another view which I think I should make clear, and it is particularly necessary that I should do so, because no such dispute has arisen. Mr. Smith's contention on that point really is, I think it was contemplated by the parties that there might be during the course of execution of the works cases where some requirement of the architect in his capacity as interpreter of the specification and drawings would involve some alteration of detail, some variation from the absolute terms of the specification or drawings, but which would not involve a claim for extra payment by the employers. Mr. Smith appears in his argument (page 55 of the printed report of the 2nd day's proceedings) to the architect's power of what he calls in that page "varying the work," and he states to my mind accurately, that the architect can order a departure from the specification and drawings, which though it may involve extra work—that is, work differing from the actual and exact work described in the specification and drawings—does not necessarily involve an extra charge against the employer. "Otherwise," he says, "it would mean that with regard to the slightest variation which was made in any contract, big or small, the contractor is entitled to say 'that is an extra,' which is, of course, an absurdity," and that argument is maintained and developed by remarks made by him on page 11) of the 3rd day's proceedings, where he speaks of the middle

case being the most of the difficulty. But in answer to questions put by my learned friend (page 118) at 3rd day proceedings) Mr. Smith says that it is not true that no alteration can be made in the contract which does not involve either an extra or an omission. In my opinion Mr. Smith's earlier argument is the sounder, and, though I am not final, I think I can say where on the documents with that exact and absolute degree of clarity that I should have hoped, I think that in Clauses 1, 5, and 12 of the conditions calling in aid the specification, and looking at the other terms in the contract, and in contemplation of the parties that it was in the contemplation of the parties that there might be departures from the specification and drawings which, so long as they involved no extra cost to the employer, could be carried out without the necessity of the contractor applying for approval by giving notice under the provisions of Clause 1 and without the intervention of the employers under Clause 13A. The specification contains on pages 5, 6, and 9, clauses which, to my mind, call attention to the fact that between the specification and the drawings, alterations, additions, omissions, variations, and extra works, such terms as "alterations" and "variations," being terms of wide scope and import, may possibly include within their purview such stricter expressions as "alterations," "variations," and "omissions," but they have also, I think, further shades of meaning and construction. Looking at the contract and conditions as a whole, there is nothing in them which corrects the meaning of the contract, and I do not doubt, in the terms of the conditions (particularly of Clause 13A) alter the effect of the clauses of the specification I have referred to, and cast a heavier burden on the contractor when he comes to claim an extra payment. There are, in fact, in the conditions the same words, "work extra," "work extra to," "vary by way of extra or omission," "variation," and "omission," which maintain the distinction originated in the specification. So that I do not agree with Mr. Smith's contention. But I agree that no alteration could be made in the contract which does not involve either an extra or an omission (using the words in the sense of an increase or decrease of price). I think it was anticipated by the parties that the carrying out of alterations or variations in the carrying out of the work which would not of necessity involve any increase in price, and it was only to those cases in which such increase of price was involved that the stringent regulations of Clause 13A were intended to apply. But the meanings of the various expressions used, and to apply them to the facts of the particular case. I have continually to bear in mind the broad and general object of the contract, and the consequences which business men, such as were the employers and the contractors, would naturally and inevitably intend to flow from the terms of their agreement. Broadly, then, the object of the contract is the carrying out of certain works for certain money. In the execution of this object, both parties must be understood to have contemplated that the carrying out of certain work might be necessary which, though within the general scope of the undertaking, was not specifically mentioned and could be inferred from the original specification and drawings. This work would or might be, in the words of Clause 1 of the conditions, "work extra to that comprised in the contract." It was realised that the question whether the work was "extra" or "work extra to that comprised in the contract," might be a matter of agreement or dispute between the architect the expert employed by the employers and the contractors; and Clause 1 provides that the person who shall take the initial decision in the matter of the contract, who shall give written notice of their opinion if they consider such work as "work extra." The natural reason for the necessity of this notice is that "work extra," would inevitably mean payment extra, and if I have said so before, I have said so before, the employers insisted that they were personally concerned. They therefore declined entirely to allow "work extra" to be a mere extra because it would mean that hereafter payment extra would be expected upon them. I have said so before, the employers intended they realised that as I have said above there might be cases where an actual dispute might arise between their own expert and the contractors as to whether such work was in fact "work extra to that comprised in the contract," or whether it could not be expended within such points in dispute were being settled and Clause 1 therefore enable the architect to decide that notwithstanding the existence of a dispute, the work shall be done, and upon it the contractor to do it and refers

the original dispute to arbitration under Clause 32 of the conditions, with all consequences flowing from such arbitration. But it is only where these four circumstances are in combination that I am able to arbitrate on the question of "work extra." There must be (1) a dispute under Clause (2) an order to carry out the work, (4) the carrying out of the work. If any one of them is absent the whole question falls to the ground, and has to be dealt with otherwise. In addition, however, to work extra, the contractor is to define alone the parties further had in contemplation other possibilities arising from the nature of the contract, specification, and drawings. They fully realised that the specification and drawings were not so complete in themselves as to enable the contractors working from them alone to carry out the works as they existed in the recesses of the mind of the architect. The specification and drawings are not complete, and the alterations and variations of detail and the extensions in the specification and in the conditions, to which I have previously drawn attention, clearly show that the parties recognised that there might be alteration and variation of this nature in the contract, not expressed in Clause 1, because some work of the kind could be inferred from the specification and drawings, might yet cause an increase or a decrease of expense in the carrying out of this kind of work, and imposes on the contractor (a repetition of the system originated by Clause 1) the duty of giving notice to the architect in the event of a variation which may involve either an increase or a decrease in price, and in consequence to his superior powers. Provision is made for the architect failing to give instructions in due course in answer to such notice (it is apparently assumed that if he does give instructions they will not be followed), and for such variation, which means the financial results of such variation, being dealt with under Clause 13. Clause 12 refers to the wider class of variation or alteration, of which Clause 5 provides a limited example and requires careful examination. The clause is "variations and extras," another reference to the distinction to which I have already drawn attention. The clause is an imperative direction to the contractors when authorised by the architect to "vary by" Clause 5 (that is, without such authority to "vary by way of extra or omission" from the drawings or specification. The words I have placed in inverted commas must, I think, be read as a whole, but the last word is the important one, the sense of which is that the clause alone, and the words that follow it are merely explanatory of it. It distinguishes mere variations and alterations of work already referred to in the specification and drawings from the class of work which is "extra to the contract," and together extra to the work comprised in the contract, the latter being a larger and wider term than the specification and drawings. Then follows the method of proof of authority having been given. "Such authorisation, the clause reads (which may be proved" in three ways, by writing signed, by drawing signed, or by subsequent written approval. It was contemplated, doubtless, that in many cases the authority might be proved in one of the three ways, the form of a writing or drawing signed. In other cases it might be verbal in the first instance, and subsequent written approval was to be sufficient proof of such original verbal authority. But the original authority, if verbal, being proved in any other way. The three methods of proof named as sufficient are not exclusive. The sole condition is that there must have been authorisation for any variation. The next sentence is "The drawings of the contract so difficult to construe. I have no doubt but that what it means is this: "No claim for extra payment shall be allowed unless the variation under which the claim arises has been executed under the provision of Clause 5 by the authority of the architect as herein mentioned." But the same word "extra" is used here as is used at the commencement of the clause though the sense in which the two words are used is entirely different. The variations which are referred to in the clause, when translated into money terms, be simply substitutional, or it may involve an increase in price or a decrease in price. The contractor is the person who will know what the financial effect of any variation will be, and therefore there is nothing in the clause to compel him to give notice of his opinion (as there is in Clause 1) yet

at this point we have to consider the effect of Clause 13A, a clause which, in my view, has spread its net very widely. By that clause (which was evidently specially inserted in the contract) it is provided that if, therefore, common form agreement, which, therefore, should be of particular force and value) of the expression used is "no extra whatever will be allowed." Now I construe the word extras there entirely in terms of money, and to mean that no claim for an extra money payment will be met (1) in respect of "work extra to the contract" within Clause 1 unless the four circumstances are together present, which throw the question to be decided under Clause 32, (2) in respect of any variation under Clause 5 or 12 unless a written order for such work was signed by the employer and the architect. No doubt there are words in Clauses 12 and 13 which indicate that the work may have been actually carried out before a price had been agreed, but in my opinion, in the circumstances, and where there is room for difference Clause 13A governs and is superior to Clauses 12 and 13, and its provisions must prevail. The contractor would certainly, in my opinion, be safe in assuming that the work unless the provisions of Clause 13A had been complied with; unless, indeed, the employers had, through the architect, ordered extra work and had then declined to agree the price or give the order. If he did not do this, he was trusting to the generosity of the employer voluntarily to waive the effect of the clause. Finally, there may be I do not say there will be—another class of work which I shall be called upon to consider, namely, work which is outside the scope and purview of the contract, looked at as a whole. With such work I have no concern, and I have, in my opinion, no power at all to arbitrate upon it, or to decide any question which arises upon it. My powers as arbitrator on this contract alone, and in reference to work which may be, or may not be, or may not be, or inferentially falls within its four walls. With regard to work of any kind my sole duty will be to identify it as falling within or without the contract. If, in my view, it falls within, I will deal with it on the principles enumerated above; if without, my powers, except by a fresh agreement of the parties, do not exist. I do not think that there is much more that I can usefully add on the case as viewed by the contractors. With regard to the somewhat varying statements and claims put forward by either side, I should like my opinions to be clear. I refer to the exact method of dealing with the variations indicated by Clause 13A. From the suggestion, if, indeed, it was intended to be seriously put forward, that the employers are entitled to reduce the price by the value of the items omitted, but that the contractors are entitled to the value of the items substituted, I am of opinion that if a variation made under Clause 12 involves a net decrease in price, authorisation alone is sufficient. It is only where the contractor is of the opinion that the net balance will be against the employer that it is necessary for him to consider the provisions of Clause 13A. But this opinion requires further elaboration and explanation. Take the concrete case of the first direction given by the architect, which is being entirely carried out by the contractors. Both parties must realise that this will involve a reduction in the lump sum fixed when the value of the omission has been measured and allowed for as directed. No notice by the contractor is alone necessary. Next take it that the second direction is involved, in the opinion of the contractor, from the nature of the direction a claim for additional payment. In that event he cannot claim for more money, but the net result will not increase the lump sum fixed by the contract, therefore I am not concerned with Clauses 1 or 13A. That is, in my view, exactly what the contractor must realise. Omissions do not (within limits) concern the employers, but works involving claims for extra payment do. The contract binds the contractor to bring the claim for additional payment before the committee of the employers, and if the lump sum is continually falling and rising, and the employers say: "We do not care when it falls, we do not care when it remains steady after a fall, but whenever it rises, from whatever cause it may rise, we want to be paid for it." The committee of Clause 13A was no doubt inserted in somewhat dangerous, and certainly in troublesome, wise (from the point of view of the interpretation of the contract) perhaps without proper

consideration of its effect and bearing on the other conditions of the contract. In fact, Mr. Hudson, in his book on "Building Contracts," says of a somewhat similar clause that it is unworkable in relation to all but small contracts. But the clause is there, and both parties must be bound to have it interpreted in its meaning, and I have to interpret it. The meaning of it is that which I have previously endeavoured to indicate. As to omissions, there is no difficulty. The contractor cannot omit without authority, and such omission would be an error, corrected by subsequent written sanction by the architect. The employers can have the value of omissions taken and allowed for. Generally speaking, therefore, the way I shall approach my duties is:—I shall examine the contract, and if I see before me in order to ascertain whether or not it is work entirely outside the scope of the undertaking. If it is, I cannot further consider it, except by the agreement of the parties. If it is not, but falls within the general scope of the undertaking, I have to determine whether it is work extra to the work comprised in the specification and drawings, and if it is, whether the four sets of circumstances are in combination, which enable me to refer it to Clause 32 of the conditions, or any one of the four sets. If circumstances are absent, and if any claim for payment is made, I have to consider Clause 13A and apply the provisions of that clause. If I determine it is not "work extra" within the meaning of Clause 13A, I have to consider Clauses 8 and 12, and if to my increase of price is claimed against the employer on net balance, I have to refer to it the question of authority. But if an increase of price on net balance is claimed, I have again to consider and apply Clause 13A. It is a somewhat complicated matter, and the contractors have argued that if the contract had been carried out according to the methods in which, in my opinion, the parties did, in fact, agree to carry it out, it would have proved impossible to carry out, but it is, conceivably have proved very difficult, but though there is in the conditions the usual clause as to the date of completion, and the usual penalty for non-completion, there is nothing in the usual clause to compel the contractor to make a fair and reasonable extension of time if the work is delayed (inter alia) by reason of authorised extras or additions. Had the contractors adhered strictly to what I consider to be the true terms of the contract, they would have found themselves in a position nearly as great a difficulty as the contractors claim that they themselves would have. The committee would have had to sit almost continually, would have been asked for daily or hourly orders, and the contractors would have been entitled to hang up the work until the blue orders were in their hands or had been refused. I, however, have to deal with the contract as it is, and with the facts as they are ascertained, and not as they might have occurred. Both parties had adhered strictly to their rights.

SECOND RULING.

I have been requested by counsel for the Hurlingham Club (hereinafter called the Employers) to give a ruling on a point arising in this arbitration—the point being whether I have any power, as Arbitrator, to adjudicate on any items contained in an account which has been put forward by Messrs. John Barker and Company, Limited (hereinafter called the Contractors). The account was put forward by Mr. Herring, the witness on their behalf, whose evidence has been intervened, without prejudice, owing to the necessity for his going abroad. I am of opinion that I can have regard to such account, and that, as I have said in a previous ruling, there is no necessity that I should give my reasons, and it would, in many cases, be undesirable that I should do so, yet in the hope of assisting the parties to come to a conclusion I propose to state my reasons for my ruling. Mr. Herring's complaint is that while the subject-matter of the dispute, so far as the contractors are concerned, is, according to his view, really fixed by an account which the contractors sent in in February, 1910, yet they are now attempting to enlarge their liability by the account which has been made up by Mr. Herring. Mr. Herbert Smith alleges that the contractors are entirely bound by their earlier account. That the situation was as though they had issued a writ, and that they are now seeking to set aside a lot of their claims, and the first time that they cannot do it. I do not think that they are so bound. Nor do I think that Mr. Smith's analogy as to the writ is a correct one. The difference between the contractors' original account and Mr. Herring's account does not involve any new and entirely different cause of action, but is one really of figures only. A specially-endorsed writ can be amended in

certain circumstances without leave, and always with the leave of the Court, and a money claim originally confined to one sum can be increased to a larger sum after the writ has been issued. The document which I regard as having a special bearing on this point is the notice of omission given by the agent of the contractors claiming that a dispute had arisen. In the recitals of that notice it is stated that the contractors claim that further moneys are due to them from the employers, but they do not state what further moneys are due, and though they may before that date have sent in the account which Mr. Herbert Smith now claims that they are bound by, it has not anywhere been shown to me that the contractors claim that this was the full extent of their claim, nor do they specifically refer to that document in the recitals to the notice claiming that a dispute has arisen. Quite wisely, in my opinion, they framed that notice in the broadest terms. Even if the case stood in their favour, but I do not think that it rests there. I am of opinion that Clause 32 of the conditions annexed to the articles of agreement under which my powers arise, has reference to a case of this description, and that the application of which has puzzled me considerably; but I think that these words have, in fact, application in this particular instance. The words are as follows:—"The Arbitrator shall have power to open up, review, and to revise any certificate, opinion, decision, requisition, or notice, save in regard to the said matters expressly excepted above, and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given in accordance with the provisions of Clause 32 to open up, review, requisition, or notice had been given," and I think that the contractors' original account is one of these particular documents in the nature of a requisition or notice, which I am enabled by that part of Clause 32 to open up, review, and revise. I accordingly admit Mr. Herring's account, though, of course, it is within Mr. Herbert Smith's power to comment on and to question the propriety of any difference between Mr. Herring's account and the contractors' original account.

THE LATE MR. ALBERT CHANCELLOR.

On Wednesday, the first meeting of creditors was held under the failure of Mr. Albert Chancellor, deceased, late of 6, Penbrooke-villas, Richmond, formerly in the firm of Chancellor and Sons, auctioneers, Richmond. An adjournment of the meeting was demanded by a creditor on the ground that it was a case for a trustee to investigate. The Official Receiver (Mr. E. W. J. Savill) understood there was a considerable amount of valuable furniture, and he also understood that at one time there were branches of the business at A cot, Sunningdale, and Staines. He noticed that the executors of Sir G. S. and Lady Meason were creditors for debts, and that, from a list lodged by the petitioning creditors, they amounted to several thousands. The meeting was adjourned for a fortnight.

WATER SUPPLY AND SANITARY MATTERS.

BIDEFORD.—Bideford Town Council, Devon, on Wednesday, adopted a £20,000 water supply scheme by which the water storage capacity will be increased to 41 million gallons, giving sufficient water for eleven months.

TRADE NOTES.

Under the direction of Mr. S. Stallard, county surveyor, Oxford, Boyle's latest patent "air-pump" ventilators have been applied at the New County Offices, Oxford.

Horden Church, Co. Durham, is being ventilated by means of Shorland's patent exhaust roof ventilators supplied by Messrs. E. H. Shorland and Brother, Ltd., of Failsforth, Manchester.

Mr. Edward Austin Abbey, R.A., left £1863, with net personality £1,129.

The Sanitary Committee of the Biddlington Corporation are recommending the purchase from Babbington's trustees of a quantity of land on the north side of the borough, for the purpose of housing workmen dwelling in the town.

The Bishop of London consecrated on Saturday the Church of St. James, Perivale, Ealing, which has been built at a cost of £8,000. The building is in the Gothic style, and was designed by Mr. W. A. Pitt.

Our Office Table.

Mr. Geo. R. Goldbrough, M.Sc., delivered an illustrated lecture on "The Stone Circles of Eskdale" at Langhulme last Tuesday night. He said that such circles were scattered up and down Britain. The circles in Eskdale, as in the case of others, were formed of boulders selected from those on the hillside or in the river beds. Avenues of stones—forming, apparently, processional roads—lead from the circles. The two circles in Eskdale were called Loupin Stanes and Gridlestanes. All the old theories assumed that the circles were built for the purposes of heathenish worship. He would, however, try to show that, while that might be quite true, the form and position of the circles was really for the purpose of determining the Calendar—that the circles had not only a religious purpose, but an astronomical one, too. What he had been able to do led to the opinion, expressed by Sir Norman Lockyer, that the Loupin Stanes were amongst the very oldest circles in Britain.

Rapid progress is being made with the Elizabethan setting for the spectacle of "Shakespeare's England," which is to be opened at Earl's Court a month hence. Already scores of houses, which when completed will resemble old oak, are under construction. One is a facsimile of Hardwick Hall, where the famous "Bess of Hardwick" kept Mary Queen of Scots so long a prisoner, and where Mary spent her time in tapestry-work. One of the chairs worked by her has been lent by the Duke of Devonshire. Historic 16th-century buildings—such as Ledbury Hall, Ford's Hospital, the Coventry almshouses, old Holborn workhouse, and Town Hall—are a famous Elizabethan church will be reproduced. That these will be archaeologically accurate may be expected, inasmuch as the designing and the construction of the Elizabethan town has been entrusted to Mr. Edwin Lutyens.

The draft Bill amending and extending the Advertisements Regulation Act, 1907, which the Scaja Society hopes to introduce into Parliament this Session, seeks to confer upon urban authorities the same powers of dealing with obnoxious advertisements as were bestowed upon rural authorities five years ago.

Clause 2 proposes that the exhibition of all advertisements on land or buildings shall be subject to regulations, while power is given to prohibit altogether those advertisements which do not relate to the land or buildings upon which they are exhibited. A sub-section of this clause recognises the desirability that local authorities should not be compelled to exercise this power of prohibition throughout the whole of their area, and various districts differentially, so that they may prohibit "alien" advertisements in rural and residential areas and regulate those in the business parts of towns or villages. The fundamental aim is to insure that the size, colour, and material of the letters or device employed shall show a reasonable regard for the size and situation of the buildings on which the advertisement is displayed.

The World "is a little sceptical about the new 'London Society.' It is to make every Londoner a critic, and it cannot insure that any two critics will agree. As things are now, the learned are content to dispute about Renaissance architecture; but with all London interested in the matter there would be a movement to pull down St. Paul's Cathedral, a counter-movement to defend it, and consequent riots on Ludgate Hill. That is possible. William Burgess, once solemnly told us that, in his opinion, St. Paul's Cathedral was only worth dropping into the Thames!

The Aberdeen Synod of the Church of Scotland had a long sitting on Tuesday, on the question of a memorial to the late King presented by King George to Crathie Parish Church. The Rev. Jacob Primmer contended that the memorial was not a Communion table, but an altar; that, as the contract by the doctrine of the Church, and he asked that

what he described as an illegal, superstitious, and idolatrous lona marble altar should be removed. It was declared that Mr. Primmer's description of the memorial was misleading and inaccurate. The prisoners of Crathis were, by the special request of His Majesty, given ample opportunity of expressing their views, and not a single complaint was received, and Mr. Primmer's appeal was dismissed.

On Tuesday afternoon next Dr. Edmund Gosse will begin a course of two lectures at the Royal Institution on "Algernon Charles Swinburne: His Early Life and Works"; on the 18th inst. Professor A. W. Crossley delivers the first of two lectures on "Synthetic Ammonia and Nitric Acid from the Atmosphere"; and on the 20th inst. Mr. Reginald Blomfield commences a course of three lectures on "The Architecture of the Renaissance in France, 1494-1601." The evening discourse on the 19th inst. will be delivered by Mr. Alan A. Campbell Swinton, on "Electricity Supply: Past, Present, and Future," and on the 26th inst. by Sir George Darwin, on "Sir William Herschel." The discourse on May 24 will be delivered by Mr. A. D. Hall, on "Recent Advances in Scientific Agriculture: the Fertility of the Soil," and on June 14 by Mr. A. H. Savage Lander, on his recent journey through unknown parts of South America.

At the conference of the National Association of Manual Training Teachers at Portsmouth on Tuesday, Sir John Cockburn delivered his presidential address on "The Physical Training of the Mind." He remarked that the necessity for activity in education, especially in respect to the employment of the hand, was generally recognised, and, further, that the training of the brain must be subsequent to and consequent on the training of the hand. The hand was, in fact, the starting-engine of the highest of the intellectual faculties. It was a significant fact that the degree of human intelligence was dependent upon the amount of grey matter in the brain, and in this grey matter were the motor centres. The brain itself was now known to be but a secondary organ, brought into activity through the use of the motor centres. In recognising the physical basis of mind, they were not taking a lower view of mind, but raising it to the whole world into a higher plane. Dr. Garnett, educational adviser to the London County Council, gave an address upon the old and the new meanings of manual training. He said that every opportunity in school life should be given to allow a child to do something in connection with what he had learned, and that he should be led, and not left to find out. Manual training should not be given in centres, but should be an actual part of each school. A paper by Mr. T. C. Horsfall emphasised the value of manual training in creating character, happiness, and efficiency.

Speaking last Saturday at the thirty-first annual exhibition of the Ashton District Field Naturalists' Society, Mr. Joseph Rowse, of Leywood, said he had attended each exhibition, and he had a vivid recollection of the study of natural history by the working men of the district as far back as the early "sixties." He attributed his good health to the early teachings of some of the old Ashton naturalists who caused him to look into the diversified world of Nature. He was afraid that football and other sports had led to a decline in the study of natural history; but he would be sorry if the working men of Ashton, whose reputation as naturalists of Ashton, whose reputation was world-wide, should ever go out of existence. The exhibition was opened by Mr. J. Makin, of Hollinwood.

At the seventh general meeting of the fifty-second session of the Edinburgh Photographic Society, which was held last week, a lecture on "Art and Environment" was delivered by Mr. J. W. Kerr, R.S.A. Mr. Kerr said that art must have its environment a certain degree of civilisation. The history of fine art abounded with instances of artists whose early surroundings could have had no apparent influence in determining the bent of their mind. It was be-

ginning to dawn upon the minds of manufacturers that taste had a commercial value, that people were quicker now to appreciate good design in fabrics, wallpaper, carpets, and other manufactured articles, and as this sense of beauty extended, people would demand, along with excellence of detail and workmanship, that these aesthetic qualities should be added. The shortcomings in our streets were still often due to vulgar pictorial advertisements, though it was pleasing to observe a gradual improvement taking place in designs; indeed, it might be claimed that many were works of art. The Government had somewhat tardily admitted the claims of art in Scotland, and it was to be hoped that in the future the people of Scotland would see that they were treated equally with England and Ireland in this respect. It was intimated that in connection with the survey section of the society's work, which has for its object the securing of permanent photographs, drawings, etc., of streets, buildings, monuments of Edinburgh, Leith, and district as they now exist, practically all the pictures illustrating Greyfriars had been completed, and the members were now engaged on photographs of George Heriot's Hospital.

It is said that the Canadian Government has practically completed arrangements for the purchase of a site in the heart of London on which will be erected a fine Canadian building. Two hundred thousand pounds were set aside for the purpose in the last session of Parliament. The site secured is said to be near Westminster Abbey. The building will contain all the Canadian offices now scattered throughout London, besides a permanent exhibition of the products of the Dominion. The statement, we fancy, is premature.

Details of the work done by the German expedition in Central Mesopotamia, under Baron Oppenheim, have reached Berlin. For some time the expedition has been at work excavating at Tel Hafeh, the site of the ancient capital of the Hittite Monarchy, and have succeeded in unearthing a series of works dating back to about the 14th century before the Christian Era. The almost entire foundations of a royal palace have been laid bare, establishing the fact that this structure rose on an elevated terrace rectangular in shape. All four walls of the palace exhibit a series of stone reliefs, with most remarkable sculptured groups and single figures, in an almost perfect state of preservation. Of these, over 170 have been unearthed. The cornerstone of one of the towers is carved with the figure of a king seated on a throne, his face covered with flowers. Before him stand two mythical beings, half human, half bovine, and bearing a symbol of the sun, represented by the spreading pinions and tail feathers of an eagle. Another sculpture is a figure of the Hittite forerunner of Hercules, clad in a lion's skin and holding a club. Another stone bears an elaborate piece of carving—namely, a bearded man held fast by two youths, who are leading him with fetters to the knees of his legs. Baron Oppenheim believes that this represents the victory of Spring over the god of Winter. Two colossal basaltic figures of animals have been discovered, which doubtless guarded the approach to the palace gate, strongly resembling the similar beasts on Babylonian monuments. Nothing is said about the discovery of fresh Hittite inscriptions.

MEETINGS FOR THE ENSUING WEEK.

MONDAY (APRIL 15). Surveyors' Institution. Paper by Mr. R. M. Kearns, F.S.I., on "The Cost of Labour in connection with the Erection and Maintenance of Buildings." 8 p.m.

Royal Institute of British Architects. Adjourned session from Dec. 18, 1911, on "The New Responsibilities of Architects," and a further Paper by Mr. J. R. Dixon Snell, F.R.I.B.A., on "The Reasonable Conditions of Contract: Some Points for Revision." 8 p.m.

WEDNESDAY (APRIL 17). Royal Society of Arts. John Henry Goss, F.I.C., on "Municipal Chemistry." Rudolph Muesel, Ph.D., F.C.S., will preside. 8 p.m.

LATEST PRICES.

| IRON. | | | | |
|--|-----------------------|------|----|-----------|
| Steel Joists, Belgian and German | 25 | 12 | 4 | 20 17 6 |
| Hex scantling, London | Per ton | 25 | 12 | 4 |
| Steel Joists, English | 25 | 12 | 4 | 21 0 0 |
| Wrought-iron Gridler Plates | 7 | 0 | 0 | 7 15 0 |
| Steel Gridler Plates | 7 | 2 | 6 | 8 2 6 |
| Cast Iron, good quality | 6 | 2 | 6 | 8 10 0 |
| Do, Lowdown, Flat, Round, or Square | 20 | 0 | 0 | 20 0 0 |
| Do, Weight | 8 | 15 | 0 | 8 17 0 |
| Boiler Plates, Iron— | | | | |
| South Staffs | 8 | 0 | 0 | 8 18 0 |
| Best South Staffs | 8 | 0 | 0 | 8 10 0 |
| Angle 10s, Tees 20s, per ton extra. | | | | |
| Builders' Hoop Iron, for bonding, &c., 2 1/2 lbs. to sq. in. | 24 | 10 | 0 | 24 10 0 |
| Builders' Hoop Iron, galv., 2 1/2 lbs. to sq. in. | 24 | 10 | 0 | 24 10 0 |
| Galvanised Corrugated Steel Iron— | | | | |
| No. 18 to 20, No. 21 to 24. | | | | |
| 6ft. to 8ft. long, inclusive | Per ton. | | | |
| 3/4 gauge | 21 | 0 | 0 | 21 0 0 |
| Best ditto | 13 | 0 | 0 | 14 0 0 |
| Wire Nails (Point de Paris) | 13 | 0 | 0 | 14 0 0 |
| 3/8 to 8 | 10 | 11 | 13 | 14 15 |
| 8/8 9/8 9/8 9/8 10/8 11/8 | 10 | 11 | 13 | 14 15 |
| Cast-Iron Columns | Per ton. | | | |
| Cast-Iron Stanchions | 8 | 10 | 0 | 8 10 0 |
| Roller-iron Fencing Wire | 8 | 5 | 0 | 8 10 0 |
| Solid-Steel Fencing | 8 | 5 | 0 | 8 10 0 |
| Galvanised | 7 | 15 | 0 | 8 5 0 |
| Cast-Iron Shaft Weights | 5 | 0 | 0 | 5 5 0 |
| Cast-Iron Flanges | 18 | 0 | 0 | 18 0 0 |
| Corrugated Iron, 24 gauge | 18 | 0 | 0 | 18 0 0 |
| Galvanised Wire Strand, 7 ply, | 14 | 5 | 0 | 14 5 0 |
| 14 B.W.G. | 10 | 11 | 13 | 14 15 |
| S.B. Drawn Telegraph Wire, Galvanised— | | | | |
| 0 to 5 | 10 | 11 | 13 | 14 15 |
| 21/0 5/0 21/0 21/0 21/0 21/0 21/0 21/0 21/0 21/0 | 10 | 11 | 13 | 14 15 |
| Cast-Iron Sock Pipes— | | | | |
| 3in. diameter | 28 | 2 | 0 | 28 2 0 |
| 4in. to 6in. | 8 | 0 | 0 | 8 5 0 |
| 7in. to 24in. (all sizes) | 8 | 0 | 0 | 8 5 0 |
| (Coated with composition, 5s. 6d. per ton extra) | | | | |
| (turned and bored joints, 5s. 6d. per ton extra.) | | | | |
| Fig. Iron— | | | | |
| Cold Blast, Lillishall | 110s. 0d. | | | 117s. 6d. |
| Hot Blast, ditto | 75s. 0d. | | | 75s. 0d. |
| Wrought-iron Tubes, 1/2 in. to 12 in. | Discount off Standard | | | |
| Lists f.o.b. (plus 2 1/2 per cent.) | | | | |
| Gas-Tubes | 75 | p.c. | | |
| Water-Tubes | 72 | p.c. | | |
| Steam-Tubes | 68 | p.c. | | |
| Galvanised Gas-Tubes | 65 | p.c. | | |
| Galvanised Water-Tubes | 62 | p.c. | | |
| Galvanised Steam-Tubes | 57 | p.c. | | |

OTHER METALS.

| | | | |
|---|---------|---------|-------------|
| Spelter, Silesian | Per ton | £25 5 0 | to £25 10 0 |
| Lead Water Pipe, Town | 20 | 12 6 | |
| Country | 21 | 2 6 | |
| Lead Barrel Pipe, Town | 22 | 6 0 | |
| Country | 22 | 7 6 | |
| Lead Pipe, Tinned inside, Town | 22 | 7 6 | |
| Country | 25 | 2 6 | |
| Lead Pipe, Tinned inside and outside | 25 | 2 6 | |
| Town | 23 | 12 6 | |
| Composition Gas-Pipe, Town | 24 | 7 6 | |
| Country | 24 | 7 6 | |
| Lead Solder-pipe (pure 4 1/2 in.) | 23 | 12 6 | |
| Country | 24 | 7 6 | |
| [Over 4 1/2 in. 2 1/2 per ton extra.] | | | |
| Lead Sheet, in 24lb. bags | 24 | 15 0 | |
| Copper Sheets, sheathing & rods | 83 | 0 0 | 83 10 0 |
| Copper, British Cast and Ingot | 74 | 0 0 | 75 0 0 |
| 16in. Sheet, Standard | 12 | 0 0 | 12 0 0 |
| Do, English Ingot | 200 | 0 0 | 200 10 0 |
| Do, Australian | 100 | 0 0 | 100 5 0 |
| Do, Bars | 201 | 0 0 | 201 0 0 |
| Pig Lead, in 4wt. pigs | 17 | 12 6 | |
| Sheet Lead, Town | 20 | 2 6 | |
| Country | 20 | 7 6 | |
| Genuine White Lead, Tins | 27 | 10 0 | |
| Refined Red Lead | 20 | 0 0 | |
| Sheet Zinc | 23 | 10 0 | |
| Old Lead, against account | 13 | 5 0 | |
| Tin | 11 | 0 0 | |
| Ant Nails (per cwt. base, ordinary brand) | 0 | 11 0 | |

TIMBER.

| CONSTRUCTIONAL. | | | | |
|---|-----|----|----|---------|
| Per St. Petersburg Standard (100—12ft. by 14in. by 11in.) | | | | |
| Yellow Pine Deals, Quebec, 1st quality | 234 | 0 | 0 | 234 0 0 |
| " " 2nd | 24 | 0 | 0 | 24 0 0 |
| " " 3rd | 18 | 0 | 0 | 18 0 0 |
| Spruce Deals, 1st quality | 8 | 0 | 0 | 8 0 0 |
| " " Miramichi | 7 | 0 | 0 | 8 10 0 |
| " " Boards | 7 | 0 | 0 | 8 0 0 |
| Red Deal, Arang, 1st quality | 12 | 0 | 0 | 12 0 0 |
| " " 2nd | 16 | 0 | 0 | 17 0 0 |
| " " 3rd | 11 | 0 | 0 | 13 0 0 |
| " " St. Petersburg | | | | |
| 1st quality | 16 | 0 | 0 | 17 0 0 |
| " " 2nd | 13 | 0 | 0 | 14 0 0 |
| " " W. Burg & Ulgor | 10 | 0 | 0 | 12 0 0 |
| " " Gelfe, Gothenburg, and Stockholm | 10 | 0 | 0 | 17 0 0 |
| White Deals: Crown | 10 | 0 | 0 | 12 0 0 |
| " " Second | 9 | 10 | 0 | 10 0 0 |
| Flooring: White and Planed— | | | | |
| 1st and 2nd quality mixed | 9 | 0 | 0 | 9 5 0 |
| 1st, 2nd, and 3rd quality mixed | 8 | 0 | 0 | 8 10 0 |
| Red Planed, 1st quality | 11 | 6 | 0 | 11 10 0 |
| Pick Pine, 1st quality Deals and Boards | 17 | 0 | 0 | 20 0 0 |
| Lignum Vine | 10 | 0 | 0 | 12 0 0 |
| Per foot super, as 1in. | | | | |
| Yellow Pine Logs (washed) | 0 | 0 | 0 | 0 4 3 |
| Pick Pine Logs | 0 | 1 | 6 | 0 1 6 |
| Sirch: Quebec Logs | 0 | 2 | 0 | 0 2 0 |
| Oak: Australian | 0 | 0 | 0 | 0 2 0 |
| Mahogany: Gaboon | 0 | 6 | 11 | 0 6 11 |

Situations and Partnerships.

The charge for advertisements for **Situations Vacant** or **Situations Wanted** and **Partnerships** is One Shilling per Twenty-four Words, and Sixpence for every eight words after. All **Situations** advertisements must be prepaid.

Rates for **Trade Advertisements** on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

RECEIVED.—S. A. A.—H. Bros., Ltd.—S. P. and Co., Ltd.—H. G. P. and Co., Ltd.—W. W. and Son, Ltd.—J. and Co.—B. S.—M. L.—E. H. and Bro.—J. H. W.—L. N.—E. R. O.—L.—E. B. D. and Son.—D. J. S. and Co.—A. G. M. R. W. and Co., Ltd.—J. T. and Co.—J. C. and F. W.

Plc.—No.

D. H. H.—Please send.

Vincent.—Not just now, thanks.

Price fix.—The idea is not novel. Look up back specifications at the Patent Office.

ETHER-MAN.—We know nothing about the Society except what you have heard. Is going to direct the "wage paid architect"?

CALDER.—Slake a sufficient quantity of freshly-burned quicklime of a good grade, and add enough skim-milk to make it of the consistency of cream. To every tin gallons add separately, in the order named, stirring constantly till thoroughly mixed, 1 lb. of powdered alum, 2 lb. of commercial potash, and 1 lb. of common salt. A few ounces of plaster of Paris will improve the whiteness; lampblack, of course, will give various shades, from slate colour to black. When applying, heat nearly to boiling point in a copper, and apply hot. This is practically fireproof, and stands any exposed position. The appearance of the roughened stucco will be improved if a little very fine white sand is added.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Burch Wallis," "Varietas," "Black Diamond," "Devic," "Joric," "Wigg," "Never-do-well," "Five Towns," "Bonmouth Queen," "Lover," "Cousin Yoke," "Ascher," "Soc," "Apton," "Why Not," "Diogenes," "St. Peter," "Brix." [More care must be taken by adhering to the rules regarding the design of the sheets of paper used. Disregard to this stipulation might, and very likely would, preclude a design from being returned, because the proportion of our pages has to be conforming to.]

N. H. Hull.—(The dimension of 140ft. given last week, in our descriptive note, as the total width of Patrington Church, Yorkshire, at the west end of the building, was a printer's error. It should have been 40ft. The date of Mr. William Haywood's drawing appeared on our illustration, 1896, since when he has been long in practice in Birmingham.)

A composition for stopping leaks, patented by Mr. G. A. La Vallée, 705, Second-street, Marietta, Ohio, U.S.A., consists of, preferably, five parts of sodium borate, four parts of sugar, fifteen parts of dextrine, and seventy-five parts of ground flax-seed, and, if desired, colouring matter, such as lampblack. The material is particularly useful for stopping leaks in the water-jacket, radiator, or connecting-piping provided for cooling internal-combustion engines, by dissolving it in the water of the cooling-system. As the water leaks and evaporates, a film of the composition is left over the leak.

PILKINGTON & CO.

(Established 1838).

DEPTFORD WHARF,
100 & 102, GREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark.

POLYCEAU ASPHALTE

Patent Asphalts and Felt Roofing

ACID-RESISTING ASPHALTE.

WHITE SILICA PAVING.

Seyssel Asphalte direct from the Mines.

TELEPHONE NO.: NEW CROSS 1102 (2 Lines).

FOR

Olivers'
Seasoned
Hardwoods,

WM. OLIVER & SONS, Ltd.,

120, Bunhill Row, London, E.C.

TENDERS.

Correspondence must be in all cases accompanied by giving the address of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

ELIA—ON-THE—For the erection of a house in Pang-road, for Mr. C. A. Mages, Messrs. Yale and Tibbs, 72, Finsbury-pavement, London, E.C., architects and surveyors.—

| | |
|--------------------------------|------------|
| Hubbs, | £2,645 0 0 |
| Johnson, W. and Co., Ltd. | 2,247 0 0 |
| Kidridge and Sons | 2,185 0 0 |
| Hubbs, F. and Sons, Ltd. | 1,845 0 0 |
| Lowell, Y. J., and Sons | 1,742 0 0 |
| Cox, C. W., and Son | 1,693 0 0 |
| Coslin, C. and T. | 1,694 0 0 |

RESIDUARY.—For erection of isolation hospital, for the Eastleigh and Bishopstoke Urban District Council.—

Stevens, H., & Co., Southampton £1,530 5 1

(Accepted.)

ROBERTSMITH.—For erection of the law courts, Bournemouth, for Mr. F. W. Lacey, M.I.C.E., borough and tramway engineer.—

| | |
|--------------------------------------|-------------|
| Hayward, J. and W. | £11,800 0 0 |
| Udall, H. W., and Son | 14,683 0 0 |
| Miller, J., and Sons, Ltd. | 14,653 0 0 |
| Roberts, J., and Sons, Ltd. | 14,640 0 0 |
| Johnson and Sons, Ltd. | 14,433 0 0 |
| Walker and Slater | 14,300 0 0 |
| Roberts, J., and Sons, Ltd. | 14,300 0 0 |
| Howman and Sons | 14,183 0 0 |
| Petrick Bros., Ltd. | 13,441 0 0 |
| Wooler, W., and Son | 13,005 0 0 |
| Colborne, A., and Son | 12,909 12 0 |
| Rhesa, G., & Sons Ltd. (accepted) .. | 12,905 0 0 |
| Patrick, J. and M. | 12,919 0 0 |

BATHURST.—For construction of a swimming-bath, for the urban district council.—

| | |
|--------------------------------------|----------|
| Podrette, T. W., Bath Hill | £247 5 0 |
| Wilson, Border, and Co., Bathford .. | 559 0 0 |
| Brown, A., and Sons, Bathford | 527 0 0 |

(Accepted.)

CHOLEY.—For the erection of a pair of estate cottages, for Mr. S. W. Chole, Mr. Edwin G. Hearens, 9, High-street, Wallingford, architect:—

| | |
|---------------------------------------|-----------|
| Munday, S. G., Wallingford | £638 15 0 |
| Wheeler, G. H., Abingdon | 630 0 0 |
| Bowden, H., Crommarsh | 570 0 0 |
| Bosher, Son, and Co., Chislesey | 554 10 0 |
| Burgess, M., and Son | 535 10 0 |

(Accepted.)

EASTBORE.—For erecting Sunday-school buildings, for the Langstone Hall Building Committee, Mr. A. Waring Vanner, M.S.A., Station Approach, Radhall, architect:—

| | |
|-----------------------------|------------|
| Miller and Selous | £1,015 0 0 |
| Phillips, A. G. | 985 0 0 |
| Bainbridge and Son | 976 0 0 |
| James Bodle, Bathurst | 925 0 0 |

* Provisionally accepted.

FARNHAM COMMON.—For constructing storage reservoir, for the Waterworks Co., Ltd., Mr. C. S. Varley, P.A.S.I., Clifton Chambers, Maidenhead, architect.

| | |
|----------------------------------|------------|
| Harfoot & Butler, Basing | £1,060 0 0 |
| Asmidge and Son, Exbridge | 1,065 0 0 |
| Goddard & Son, Eton | 1,047 6 0 |
| Wheeler, J. Maconter | 1,044 0 0 |
| Croed, W., Maidenhead | 1,021 0 0 |
| Acoc & Co., Moorfields | 1,010 0 0 |
| Wheeler, H. D., Eton | 988 0 0 |
| Burford & Son, Eton | 988 0 0 |
| Cox & Sons, Maidenhead | 987 0 0 |
| Chennells & Sons, Eton | 955 0 0 |
| Silver & Sons, Maidenhead | 949 0 0 |
| Clarke, E., Farnham Common | 916 0 0 |

(Accepted.)

GATEHEAD.—For additions to High West-street Schools, for the education committee, Mr. F. W. West-street, Gatehead, architect. Quantities by the architect:—

| | |
|---|------------|
| Fenwick, S., & Co., Newcastle-on-Tyne | £2,571 0 0 |
| (Ake and Co., Hebburn-on-Tyne | 2,567 1 7 |
| Jackson & Son, Newcastle-on-Tyne .. | 2,491 0 0 |
| Mine, J., Gateshead | 2,419 0 0 |
| Haven & Hucham, Gateshead | 2,394 0 11 |
| Tracey, R., & Co., Newcastle-on-Tyne .. | 2,273 14 0 |

(Accepted.)

HALE.—For making-up a road, for the urban district council:—

| | |
|---|----------|
| Snappe, W., and Sons, Eccles | £391 0 0 |
| Shepherd, W., Rochdale | 251 0 0 |
| Meale, W. J., Liverpool | 231 0 0 |
| Barber, T., Exors. of, Altrincham | 252 0 0 |
| Woodfine, W. J., Sale | 241 0 0 |

HATFIELD.—For enlargement of Hatfield bridge, for the Essex County Highways Committee:—

Calley, A. T., London (accepted). £1,181 8 6

HAWELL.—For fencing in connection with the Banton road widening, for the urban district council:—

Palmer, T. W., and Co. (accepted) £113 7 2

HAWELL.—For alterations to the free library, for the urban district council:—

| | |
|-------------------------------|----------|
| Tollerer, E. | £270 0 0 |
| Kinnison, A. | 717 4 0 |
| Kingsley and Son | 74 0 0 |
| Speckley and Smith | 631 0 0 |
| Duper, J., and Co., Ltd. | 623 0 0 |
| Dickens, W. J. | 623 0 0 |

* Recommended for acceptance.

INVERKEITHING, ETC.—For extension of the water main from Inverkeithing to Hilted, for the Danfermeling District Committee.

Rair, A. Glasgow (accepted) .. £1,973 15 10

KEIGHLEY.—For extensions to the institute, for the education committee. Tenderers recommended for acceptance:—

| | | |
|--------------------------------|---------------|------------|
| Warton, J. | Mason | £2,160 0 0 |
| Flower, S., and Co., Ltd. | Joiners | 2,059 15 0 |

Atkinson, T. Plumber: .. 954 15 3

Emmott, A. Plasterer .. 906 0 0

Nelson and Son .. Slaters .. 226 0 0

Thompson, E. Painter: .. 87 4 3

LEWIS.—For erection of the Hadden-road school extension, for the education committee:—

| | |
|-----------------------------|------------|
| Hickman, T., and Sons | £1,170 3 9 |
|-----------------------------|------------|

Recommended for acceptance.

MAIDSTONE.—For the levelling, paving, metalling, &c., of St. Philip's-avenue (except the footpath, kerb, and channel on the east side), for the urban district council, Mr. T. F. Bunting, borough surveyor:—

| | |
|------------------------------------|-----------|
| Road Maintenance Co., Gaversand .. | £231 10 0 |
| Price, A. E. J., Swanley | 234 14 9 |
| Clark and Ford, Maidstone | 231 0 0 |
| Barrows, W. T., Maidstone | 231 10 0 |

* Accepted.

NEWPORT, MON.—For constructing sewer and road off Oakfield-road, Messrs. Page and Lister, Crown Chambers, Newport, architects:—

| | |
|---------------------------------|----------|
| Herbert, H. J., and Co. | £199 0 0 |
| Sunder, P. H. | 254 0 0 |
| Partridge, J. J. | 211 0 0 |
| Lindfield, F. | 218 0 0 |
| Edward, G. | 203 0 0 |
| Mann, R. | 191 17 0 |
| Morson, S., and Co. | 189 0 0 |
| Prosser and Co. | 173 0 0 |
| Vincent, G. | 170 11 0 |
| Llewellyn and Co. | 169 10 0 |
| Williams, J. H. | 167 0 0 |
| Smith, H. C. (accepted) | 161 10 0 |
| Parfitt, F. C. (accepted) | 153 0 0 |

All of Newport.

NEWPORT.—For construction of a reservoir with a storage capacity of 565,000 gallons, in Beechwood Park, for the Newport Waterworks Committee:—

Cowlin, Bristol £1,300 0 0

(Recommended for acceptance.)

NEWRY.—For erection of two blocks of artisans' dwellings in Kil-street, construction of new street, for the urban district council:—

Blocks. Street works.

Graham, J., Droghda .. £1,784 10 .. £121

(Accepted.)

OVERSTAY.—For constructing sewerage works at Weston Rhyr, for the rural district council, Messrs. Berrington, Son, and Watney, Prudential Chambers, Wolverhampton, engineers:—

| | |
|------------------------------|-------------|
| Braithwaite and Co. | £1,316 13 3 |
| Treadwell, G. T. | 2,048 0 0 |
| Jones and Evans | 2,843 0 0 |
| Thomas, W. H. | 2,790 0 0 |
| Koswell, M. A. (accepted) .. | 2,701 0 0 |

Engineers' estimate, £2,130.

WALTHAMSTOW.—For alterations to Marsh-street school, for the Education Committee, Mr. H. Prosser, M.S.A., High-street, Walthamstow, architect. Quantities by Mr. G. W. Francis:—

| | |
|---------------------------------------|------------|
| Coxhead, F. J., Leytonstone | £1,465 0 0 |
| Webb and Co., Walthamstow | 1,378 0 0 |
| Brand, Pratt, & Co., S. Tottenham .. | 1,362 0 0 |
| Harlow, J. J., Walthamstow | 1,370 0 0 |
| Barton, A. G., Walthamstow | 1,332 0 0 |
| Wandle, J., Walthamstow (accepted) .. | 1,231 0 0 |
| Evans, R., & E., Beckton | 1,198 0 0 |

WESTMINSTER, W.C.—For construction of a sewer under Air-street, from Glasshouse-street to Regent-street, for the city council:—

| | |
|----------------------------------|-----------|
| Hayter, | £291 15 0 |
| Muirhead, W., and Co., Ltd. | 850 0 0 |
| Paterson, D. R., Ltd. | 670 6 3 |
| Swart, | 550 0 0 |
| Mowlem, J., and Co., Ltd. | 8 6 0 |

* Recommended for acceptance (including maintenance for one year).

WHEATLEY HILL.—For alterations to the workmen's club at Wheatley Hill, Turnley, Mr. H. T. G. G. G. 22, Market-place, Durham, architect:—

| | |
|------------------------------------|----------|
| Hove, H. G., | £121 0 0 |
| White, J. W., Sunderland | 615 0 0 |
| Ayton, W. H., Newcastle | 490 0 0 |
| Condon, T. J., Durham | 474 0 0 |
| Dwyer, W., Wigan | 457 15 0 |
| Whittingham and Son, Sunderland .. | 431 0 0 |
| Hadley, J., Newcastle | 414 10 0 |
| Hadley, J. W., Sunderland | 392 12 0 |

* Accepted.

WILMINGTON GREEN.—For the erection of International Stores at St. Wain-lane, Messrs. George Haines and Son, 5, Gloucester-lane, Strand, London, W.C., architects:—

| | |
|--------------------------------|----------|
| Mason and Son | £265 0 0 |
| Clark Bros. | £24 10 0 |
| Brightman and Son | 52 0 0 |
| Jermam, J. | 815 15 0 |
| Hatley, Sons, and Holmes | 617 0 0 |
| King and Sons | 617 0 0 |
| Lewis and Bro. | 610 0 0 |
| Willmott and Sons | 461 0 0 |

* Accepted, with modifications.

(Continued on page XVI.)

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Eppingham House,

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Strand, W.C.

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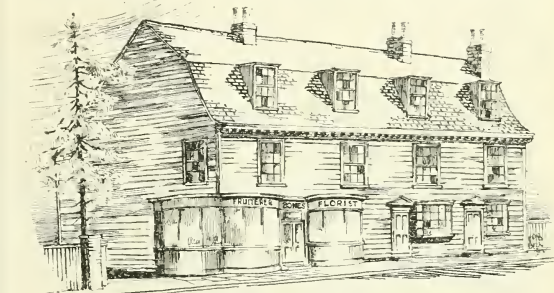
NOTES AND SKETCHES NORTH OF LONDON.

With the approach of spring, the keen architectural student looks once more to his pencil, his pen, and his water-colours, and casts about him for fresh examples of that phase of architecture which he has made his own peculiar study, to which he wishes to turn his attention for the time being.

Good examples of almost all periods abound over the country, and yet each district has peculiarities of its own which have grown up from local conditions and materials, chance circumstance, or around the genius of some great architect of the past. And the student who is a true artist likes not only to find good architecture, but literary associations and picturesque scenery as well. All these are to be found along the Great North-road leading out of London through Tottenham, Waltham Cross, Cheshunt, Broxbourne, and other minor villages to Ware.

WALTHAM CROSS

is the first point worthy of attention, although if the approach be made by way of Enfield, several good examples of Georgian ironwork may be seen guarding the larger houses by the wayside. At Waltham stands one of the only three now



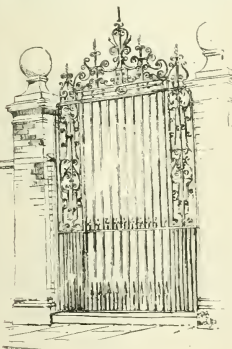
Weather-Boarded Houses, High Street, Cheshunt.

13th-century Gothic monument designed for an unusual purpose. It was the work of Alexander of Abingdon, Dominic de Leger of Rheims, and Roger de Crundale. The stone was brought from Caen in Normandy, and the cost is stated to have been £95. Away to the right lies the Abbey of Waltham, dedicated to the Holy Cross—a fine example of Norman work, with nave and aisles, stone piers, and semicircular arches. The whole of the choir and transepts have disappeared, and a very decadent Gothic screen, erected some fifty years ago, now makes what was originally the western arch of the tower over the crossing into the east end. The Abbey was founded by Harold in 1060, and his body is said to have been buried here, but the spot is unknown. The ceiling is modern, having been painted by Sir E. J. Poynter. There is a Late Gothic tomb, dated 1599, to the memory of a Lord of the Manor, Sir Edward Derry by name, and his wife and family, and a Renaissance monument of 1697 over the tomb of one, Robert Smith. The tower, of much later date, would make a fine water-colour drawing viewed from the main road, silhouetted as it is against the sky, and crowned with a black oak cross. Returning to and crossing the main road, there lies about a mile away the once famous mansion of Theobalds Park, the scene of many visits from Queen Elizabeth and King James I., who both appear to have taken a particular liking for the place. Practically none of the original structure now remains; but, at the main entrance stands the historic gateway from Temple Bar, which forms an

imposing, if somewhat lonely-looking, portal to the present house.

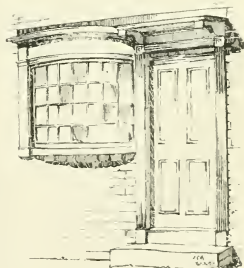
WARE.

Continuing along the road, the names of the villages recall John Gilpin's famous ride from Edmonton to Ware, as related in Cowper's well-known poem; and it is interesting to notice that Cowper was not by



Wrought-Iron Gateway, Hoddesdon.

remaining of the original Eleanor crosses, and this has been very much restored. It seems to have been well handled and forms a most interesting example of a

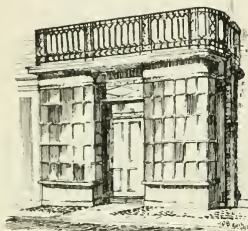


Wooden Bow Window and Door, Cheshunt.

any means the only literary character connected with the neighbourhood; there were Charles Lamb, who wrote frequently about Hertfordshire and the country round here; Samuel Pepys, who visited Ware; and John Scott, the Quaker poet, a native of Great Anwell; while Izaak Walton fished in the

River Lea, and the famous Rye House plot of the reign of Charles II. was hatched in a castle now practically all demolished, but which stood just off the main road near Hoddesdon. Quiet houses line the road dating from Georgian times—a combination of good red-brick and white-painted square-paned, sash-barred windows, simple and domestic in feeling, having just that note of richness in doorway or cornice to save them from the dull and commonplace.

Delightful little bow-windows in wood are quite characteristic, frequently combined with a doorway. Weatherboarded cottages or groups of shops appear every now and then to add variety and picturesqueness to the route, whilst once in a while is seen a more pretentious house with wide-proportioned front, strong cornice, and scholarly porch; standing back among the trees, and guarded by a rich, wrought-iron railing and dignified entrance-gates, they remind the traveller of the old-time village squire, once indispensable to village life. Several of these larger houses are to be seen around Eufeld, and one with a very good porch of the Doric order in wood, near Hoddesdon. That characteristic feature of the period, the iron balcony-railing, is not wanting.



Shop Front. Ware.

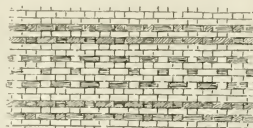
and many examples are to be seen. In Broxbourne is a most curious combination of wood posts and iron filling, perhaps not altogether as happy as might be wished. Ware is a rather disappointing town. Although mentioned in Domesday Book, it conveys very little impression of its ancient foundation. Possibly its commercial position as the centre of the malting industry of Hertfordshire has done much to rob it of any old-world feeling. One or two interesting houses are to be found, however, and the Town Hall, in spite of a very plain and severe stucco front, is rather pleasing.

Ware Church, built of flint and stone dressings, has a good interior, but much restored. It is Late Gothic, has nave and aisles and short transepts, with a flat-pitched, bracketed, tie-beam roof of dark colour with gilded bosses. There is a Perpendicular wooden screen to the Lady-chapel partly restored, one or two rather good but small brasses, a Renaissance pulpit, and a font dating from the reign of Henry IV. One of the late Lords of Ware Park, Henry Fanshawe, is remembered by a tablet of Renaissance design dated 1666, which is placed upon the wall near the Lady-chapel. While there are no great architectural monuments along this stretch of country, there is plenty of good and interesting work of a smaller character. In addition to that already mentioned, there is Chesnut House, a red-brick structure containing many portraits of historical interest, Haileybury College, and Churches at Chesnut, Broxbourne, and some of the other villages of more or less interest.

besides numerous examples of domestic work which will repay any time and study bestowed upon them.

BRICK ORNAMENT.—II. COLOUR LINING, RAISED AND SUNK WORK, ETC.

One of the most beautiful and natural reliefs in connection with brick ornamentation—far more so than the aimless intro-

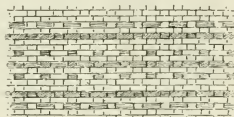


221

Double line relief pattern
with double line centre.

FIG. 1.

duction of stone in a violent contrast of conflicting colour—is that of lining. Judiciously arranged, either in different colours—such as a grey with stocks—red, or the various tones of brown-coloured bricks, stocks with browns, reds, etc., far better results may be obtained than by the introduction of a foreign and unnecessary element in brick-building. If carefully arranged with the more subtle toning distinctions of various

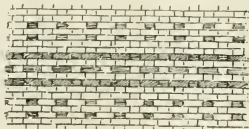


222

Double line relief pattern
with double line centre.

FIG. 2.

tints of brown, red, etc., the pattern being picked out also in a lighter or darker tone of the same colour, with sometimes a slight relief of grey. A far higher grade of real artistic merit is obtainable, producing at once a more refined and subdued composition, quite lacking any of those inharmonious notes caused by more violent contrasts; such as, for instance, a vivid red of startling brilliancy combined with the brightest of yellow stocks. Some knowledge or taste regarding colour is doubtless required, even for fairly successful work in these materials.



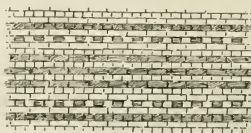
223

Double line relief pattern
with double line centre.

FIG. 3.

to say nothing of obtaining the best results possible. At the same time, a far higher grade of work might be produced in this branch of architectural art in general by the use of a little discrimination and bearing the above hints in mind. Simple lining effects in colour may be readily obtained, and that really without the slightest extra expense, simply by picking out the bands or patterns in the natural bonding by either of

the above-mentioned methods. Several such designs are illustrated by Figs. 1, 2, 3, and 4. Simpler lining patterns can be easily formed, if desired, merely composed of two or three

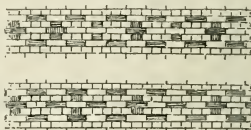


224

Double line relief pattern
with double line centre.

FIG. 4.

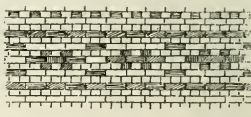
lines, which will no doubt be readily enough grasped from the first four illustrations without separate figures. It should be specially noted that this style of work does not interfere with the bond, or involve cutting, in any way. Coming to a slightly more ad-



Double colour relief pattern
with Diaper cross.

FIG. 5.

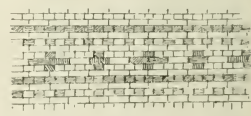
vanced stage by the introduction of diaper patterns, a little more care is possibly required in the setting, as shown by Figs. 5, 6, 7, 8, and 9. Another stage in brick ornamentation is that of alternated composite patterns, illustrated by Fig. 10. Such work can be used to advantage either continuously in frieze decoration, etc., or simply as a pattern-piece, as shown, forming a centre to



Double colour relief pattern
with Diaper cross.

FIG. 6.

a gable or some other prominent feature which would otherwise present a monotonous blank space. Fig. 11 illustrates another simple composition. These patterns, however, invariably look far better paired and linked up with broken lines in a similar manner to that shown by Fig. 9. In illustrations 12, 13, and 14, various patterns of



Double colour relief pattern
with Diaper cross.

FIG. 7.

double chainwork are shown. Lighter and narrower banding by this method, to meet various requirements, can be formed by means of a single chain alone. This point should be noticed from the latter illustrations

without separate ones. Exceedingly good combination effects may be obtained by the judicious arrangement of colour relief-bands with raised and sunk work, a simple pattern

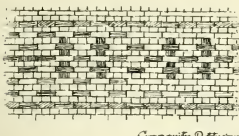


FIG. 8.

in this style being illustrated by Fig. 15, the variation of effects obtained in the same pattern with the two different methods being here shown. Composite patterns, again, in raised and sunk work, are capable of really beautiful results when carefully studied with

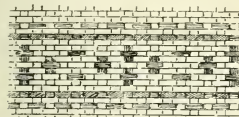


FIG. 9.

regard to correct relief, composition, and colour effects combined, as shown by the illustrations Nos. 16, 17, and 18. Regarding the two latter figures, it is well to note the value given to the composite patterns by the wider spacing as compared with the previous and other figures. With this style of ornament, the same as in any other, too much repetition of closely-set patterns merely tends to over-elaboration and equality of

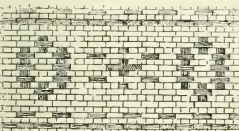


FIG. 10.

ornament—a result which is often as bad as, where not far worse than, no ornament at all. Carefully-set composite patterns, with the requisite blank spacing between, slightly connected up with toned, raised, or sunk bricks, in broken line, produce by far the best results, as seen. Fig. 19 illustrates a

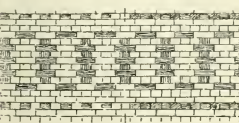


FIG. 11.

single and elongated chain pattern picked out in solid colour with recessed panels, producing another slightly varied effect.

Figs. 20 and 21 illustrate another more

advanced stage by two different patterns in sunk work introduced in projected panels. The latter may, of course, be left quite plain in solid panelling, if desired, or decorated with colour-reliefs instead of the sunk patterns shown. The pattern itself could also be projected slightly as a still further variation. This stage of solid and decorated panel-work, however, requires a section to itself, merely to partially illustrate the many possibilities of this branch. Other patterns—

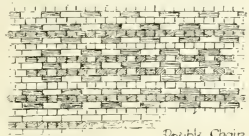


FIG. 12.

so well known, in fact, as not to require illustrating here—are the diamond and cross, formed in stepped fashion, or the diagonal, by running through the customary brick coursing. These two examples form practically the sole patterns and only method of "brick relief" or "ornament" at present. At the same time, even these possess possibilities in the way of fresh developments, which will be shown in a more applied manner in a later chapter.

The illustrations to this chapter have been

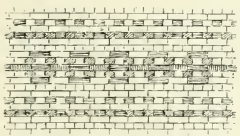


FIG. 13.

kept quite plain for the sake of simplicity; but it is well to note that the patterns can be still further elaborated by using various moulded bricks as indicated in Chapter I. By these methods, a larger degree of enrichment, variation, etc., might be still further introduced. Regarding the constructive side of raised and sunk work, also as viewed with respect to the bonding. A great deal can be done in this direction with a very slight amount of extra trouble beyond that involved by ordinary plain brick building, and that merely being incurred by a little more care

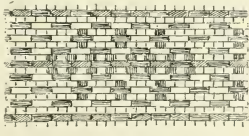


FIG. 14.

requisite in the actual setting of the projected or recessed bricks. These must, of course, be kept at a uniform level throughout any particular piece of work. As a rule, very little projection or recession is required to obtain the best results in light-and-shade effect on any average building—for instance, on three- or four-story structures—a $\frac{1}{2}$ in. to $\frac{3}{4}$ in. projection or recession being quite

sufficient to pick out a pattern and produce the requisite degree of ornamentation without coarseness. The latter effect being incurred if these dimensions are exceeded

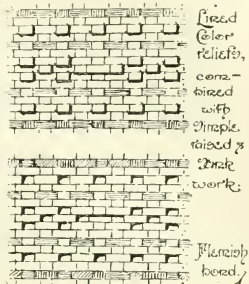


FIG. 15.

to any extent—unless this point has to be specially considered for greater heights than those mentioned above. With sunk ornament used in 9 in. work, the pattern would, of course, appear reversed on the inside. Here it would form either a good key for the plaster, or in some cases, where the inside is left in plain brickwork, it might very well be arranged to form an internal relief as well. With walls of greater thickness, it might be occasionally necessary to rough-cut recessed bricks to prevent

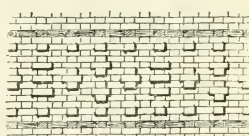


FIG. 16.

considerable displacement or contrivance with the bonding. With by far the majority of work, however, even this point can be got over by utilising a queen closer or half-brick for the recessed portion, making up the difference of internal space with a thickness or two of rough-cut tile, as the case may be. The latter would usually be found cheaper and more convenient than carefully cutting down the bricks to a required size. Thick tiles of narrow widths

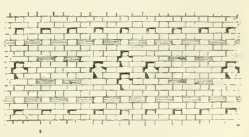
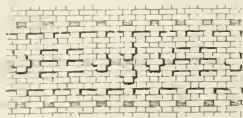


FIG. 17.

can also be usually obtained which would form a convenient size for adaptation to this work where a greater depth of shade, with consequent projection, might be desirable for ornament placed at some height. This system of using tiles would, of course, be just as useful for making up similar internal spacing formed by projecting bricks. These

points are worthy of note, although such particular treatment would really only be essential where from a purely constructive view, it would be necessary to make every part of a wall uniform throughout. In a great deal of average work, with no excep-



Embroidered, Ribbed & Slab
Pattern used

FIG. 18.

tional stress upon it, the slight irregularity involved by these methods of pattern-work might very well be filled in with the mortar, or in some instances, where running a trifle wider, with a little extra mixture in each it. The above are all points which require due allowance being made for, according to the nature of a pattern used, and whether the internal discrepancies involved might, in the aggregate, materially affect the strength of a wall at this point. Such as, by using closely-set patterns in combination with some depth of frame. That such, however, are well worthy of study, and due allowance being made for them, should be quite apparent. The proper study of brick ornamentation is quite an art in itself, although very little

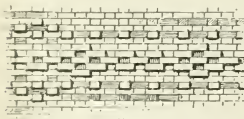


Embroidered, Ribbed & Slab
Pattern used

FIG. 19.

indeed is ever, or has been, done in this direction.

There are many examples on every hand, to the extent of acres and acres of buildings in every city and town, possessing some vague attempt at doubtful "decoration" in an equally doubtful "ornamental" manner, by means of the introduction of various discordant pieces of stone or cement, grotesque in shape and totally out of proportion. A stranger to this planet might well think that brickwork itself was some novelty in building material just introduced, instead of having been the commonest constructive one in existence for many centuries, to the extent of some thousands of years. With such a wealth



Heavy Ornate Brickwork,
"ribbed and Slab" work
with decorative lineage.

FIG. 20.

of ornament at command, too, is its own material, more effective and beautiful, because natural, instead of an artificial foreign substance introduced for show and gaudy effect. Natural brick ornamentation only requires proper study and treatment for its development to a much wider field than would appear possible at first sight, even to the average highly-trained professional. It

would be quite possible to fill a whole volume with designs, compositions, variations, etc., in the sections treated here alone, which have merely been lightly touched upon, so far as space permits. In tracing out somewhat the variations, etc., possible, as applied to the same pattern, it has probably shown best how to deal with this system of ornament. Fresh



Fluted, Ribbed, and Slab

FIG. 21.

designs would doubtless occur also to others inclined to give the subject serious consideration, having some basis to work upon.

W. C. KERRY, Architect.

THE TEMPLE OF THE SUN, ROYAL GARDENS, KEW.

[WITH ILLUSTRATIONS.]

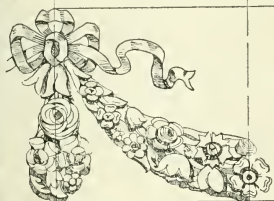
This building is, perhaps, the best of several erected from the designs of Sir William Chambers for her Royal Highness Augusta Princess of Wales, whose seat was at Kew. The Orange House and these Kew temples were among his earliest works. Though Chambers was more or less associated with the vagaries of the Chinese vogue then the fashion, it has been thought that the Pagoda at Kew, which he built, close to the Thames, was due rather to the lack of taste on the part of his patrons than to his own initiative, which generally exhibited a sense of appropriate design, and this idea as to the origin of the Pagoda certainly obtains support from the refinement which distinguishes the Temple of the Sun and other like erections of Kew from his pencil. Drawings of these designs by Chambers appeared in 1763, illustrating their good proportions and elegant fancy. In 1772 his "Dissertation on Oriental Gardening" caused no little stir among the people of fashion and the advocates for the dilettantism which distinguished the mode towards the end of the 18th century. It may be difficult, however, to regard this publication quite seriously, as Chambers himself remembered, was originally intended for trade by his father, a well-known merchant in Stockholm, and with this object he sent his son William on a business journey to China and the West Indies. This excursion enabled Chambers, the architect, to become personally acquainted with Chinese building, which had about this time furnished material for imitation design in England. Chambers, on his return to Europe, relinquished commerce and became a pupil of Clersseus in Paris, and, having given up all idea of following mercantile pursuits, he afterwards resided in Italy, where he displayed considerable industry in the study of Classic art, which no doubt modified his earlier predilections in favour of Oriental extravagances. Carr, the famous architect of York, obtained for Chambers, on his return to England, an introduction to Lord Bute for the post of instructor in art to George III., then Prince of Wales. Hence the opportunities which soon followed at Kew and elsewhere at the outset of his professional career. The nobility emulated the fashion set by the Court, and casinos became essential in the pleasure gardens and park like grounds of all persons of quality, as may be seen from Chambers's designs at Wilton and Tanfield Hall, York, not to mention the most important structure of this class of the casino kind erected by Chambers, at a cost of something approaching £60,000, at Marino, Clontarf, near Dublin, for the Earl of Charlemont. Measured drawings of that building appeared in the BUILDING NEWS for July 30, 1909. The Temple of the Sun at Kew was erected in 1761, and its design may

be said to be based upon the Temple of Venus at Baalbek. It is of the circular Peripteral kind. The Order is Corinthian, with fluted columns, and the entablatures are fully enriched in an academic and elegant way. Stone is only employed in the lower part, the building proper being executed in stucco, and the interior is plastered. The dome is covered with copper; over each column on the frieze are baso-reliefs representing lyres and sprigs of laurel, while round the upper part of the cells are suspended festoons of fruits and flowers. Internally, the cells form a salon, originally richly furnished and gilded, but now whitewashed. In the centre of its vault, or dome, is represented the sun, and on the frieze, in twelve compartments, surrounded with branches of laurel, are represented the Signs of the Zodiac in baso-relievo. Probably the stucco finish of the temple is constructed on a brick core, the walls of the cells being only about six inches thick. The effective contrasts furnished by the alternating curves of the cornice and entablature are very pleasing, and the windows are in this way left free of shadow, as the colonnade forms no sort of shelter. The height of the superstructure is largely carried by the columns, which also give rigidity to the building, acting in some sense also as buttresses. The oxidation of years has given a beautiful green colour to the cupola, harmonising it well with the pale yellow of the stucco and the surrounding foliage of the gardens in which the temple now casually stands. When structures of this character are promiscuously placed, as this building is, without any reference to an architectural scheme or to any environment, much of their advantage otherwise obtained is obviously lost, and in this way particularly the Temple of the Sun appears isolated and devoid of that particular importance which appropriate accessories alone can give. Consequently, at present, with all its excellent modelling and finish, the building is seen to a disadvantage, which is most unfortunate. This lack of appreciation on the part of the public in these days of increased recognition of garden architecture is all the more blameworthy, and it is entirely at variance with the historic importance invariably accorded to garden houses from Tudor times till the days when this temple was built. A reference to such examples as the gazebo at Westbury Court, that at Beckington, with its stone-tiled roof, or to quite another instance, at King's Weston, Gloucestershire, at the end of the 17th century, and at the end of the 18th century, at Stewpond, call to mind the rightness of this contention, which also obtains further confirmation by the exquisitely rich and well-designed Early Renaissance angle pavilions at Montacute in the terraced wall of the formal garden facing the park. Other examples of Old English taste in this matter are furnished by "the justice room" at the end of the garden vista at Severn End, near Worcester; the garden temples at Blickling Hall, Norfolk, and Nun Moncton, York; Iford Manor and again at Charlton House, Kent. The celebrated wrought-iron gazebo, copied to some extent from the timber trellage contemporary erections once so fashionable, at Melbourne, Derbyshire, ought likewise to be mentioned in this connection. One and all, though so different to themselves, and so unlike Chambers's Classical conceptions, emphasise the dominating importance of making all such erections part and parcel of a general scheme out of which, as a matter of fact, they ought naturally to grow, instead of being dotted about landscapists' grounds as if accident alone accounted for their employment. In Victorian days, heather-thatched rusticated wooden arbours were considered too often the only sort of garden buildings worth erecting, and, lightly valued in their origin, naturally enough they were esteemed so little as to become speedily the receptacles of rubbish, or left to harbour the dirt of neglect and the industrious multiplications of vermin. An excellent photograph of the Temple of the Sun at Kew is given by one of the folio plates in Belcher and Macartney's famous work on "The

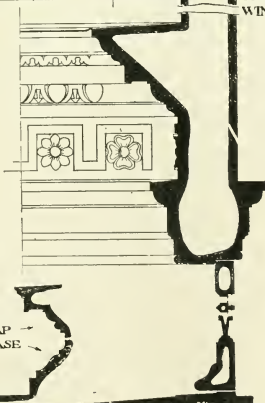
THE TEMPLE OF THE SUN ROYAL GARDENS, KEW.

SCALE OF FEET

SECTION THROUGH
ENTABLATURE



SECTION
THROUGH
DOOR



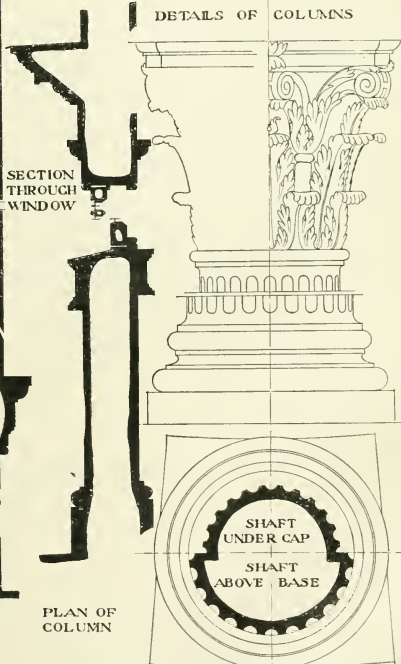
PEDESTAL CAP
" BASE

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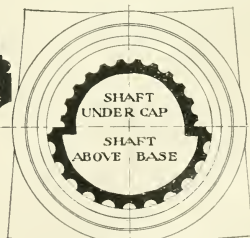
MEASURED
& DRAWN OCT 1910
Maurice S. R. Adams

SECTION
THROUGH
WINDOW

DETAILS OF COLUMNS



PLAN OF
COLUMN



MEASURED AND DRAWN BY MAURICE S. R. ADAMS, A.R.I.B.A.

Later Renaissance Architecture in England," where it is wrongly described as "The Temple of Eolus." The accompanying two sheets of measured drawings—the first yet published of this building, we believe—have been lent us by Mr. Maurice S. R. Adams, A.R.I.B.A.

THE COST OF LABOUR IN CONNECTION WITH THE ERECTION AND MAINTENANCE OF BUILDINGS.*

By R. M. KEARNS, F.S.I.

The quantity surveyor, when preparing a schedule of prices for measured work, or, in special circumstances, an estimate priced in detail of the cost of a proposed new building, is sometimes in doubt as to what he should allow for labour. He can readily obtain prices and quotations which will give him all necessary information with regard to the cost of materials; but the cost of labour is not ascertained so easily, for not only do the labour rates vary considerably in different parts of the United Kingdom, but the amount of work executed in a given time by equal numbers of workmen also varies according to local skill, or the local standard of what constitutes a day's work. It does not follow that the building contractor always meets with the same difficulties as the quantity surveyor when estimating the cost of labour. The successful contractor must of necessity frame his estimate on an accurate knowledge of the local wages rate, such knowledge being obtained from representatives of the different trade-unions, or by means of researches which are usually impracticable to quantity surveyors. Furthermore, the contractor's foremen introduce leading mechanics, with whom they are well acquainted, at special wages rates, and these men generally manage to maintain in the execution of the contract a standard of progress which will insure their employers against loss. With reference to the varying labour rates, I have prepared what may possibly prove to be an interesting and useful table, showing, near to, and ascertaining them, the rates which are current at the present time in some of the towns in the United Kingdom. The towns named are placed according to their geographical latitude, working from North to South; London, Edinburgh, Dublin, and other important centres being printed in large type for ready reference. The extra allowance of 2d. per hour claimed by masons "fixers" is generally granted in places other than London in respect of ashlar work, columns, dressings, etc. I have been informed, however, of a case in which the claim was made unsuccessfully in connection with rubble walling. With regard to carpenters and joiners it is possible that their rate of wages may be increased in several places in the course of this year. A notice has been given, which does not take effect in London till July, that the demand is, per hour (i.e., an increase of 1½d. per hour), double pay for overtime, and a reduction of summer hours from fifty to forty-seven a week. Anyone who is fond of retrospection would do well to see a copy of the BUILDING NEWS of July 22, 1881, which contains a comparative statement showing the number of hours worked per week and the rates of wages per hour of mechanics and labourers in various towns in Great Britain. In that year carpenters and joiners were paid 9d. an hour in London, the summer hours being 52½ per week and the winter hours 47 on the building and 52½ in the shop. Their rate has since, at varying intervals, been increased by ½d. per hour, until in 1900 it reached the present amount of 10½d. per hour. An increase from 2s. to 27s. per week was made in August 1911 in the wages of London carpenters. This increase may slightly affect the cost of contractor's work, and the cartage of materials to the site when the carting is subtle; but I understand that most building contractors in London were already paying their own workmen, that is the one-horse drivers, about 27s. per week. While I am prepared to speak in terms of high praise with regard to the

carmen in the direct employ of the leading building contractors, I feel compelled to take this opportunity of stating that in my opinion the men employed by cartage contractors are, as a rule, unnecessarily rough; and it would seem that many of them need to be taught how to care for their heated and usually over-worked horses, and to handle them more gently. Although these men work long hours—72 per week—and, consequently, are not always in the best of tempers, that cannot exonerate them from blame if guilty of neglect or cruelty. Looking at the table of wages rates which I have prepared, one can not help feeling astonished at the low rates obtaining at the present time in some of the country towns and throughout Ireland. The want of uniformity, which is most apparent, has long been regarded as a powerful factor in the depopulation of rural districts and the smaller towns, where wages are from five to ten shillings a week less than those which may be earned in the large centres. A report was issued in February last by the Labour Department of the Board of Trade, giving the "Standard Time Rate of Wages in the United Kingdom" at January 1 last. It also gives the summer hours of labour (exclusive of overtime), and on studying the figures it will be found that, as a rule, the number of hours worked is greater in those localities where the lowest rates are paid. I have not given in my table of wages rates any information as to the number of hours worked in summer and winter; but for all practical purposes in connection with estimating, I think the following figures are sufficient:—

| | Average number of hours worked per week per annum:— | |
|---|---|--------------------|
| | Summer. | Winter (12 weeks). |
| London (all trades, excluding overtime)..... | 50 | 45 |
| Country (all trades, excluding overtime)..... | 55 | 50 |

It may be of interest if I state here that the following rates are paid in London in connection with reinforced concrete work:—Labourers, 7d. per hour (a few at 7½d.); gangers—one to about thirty labourers—9d. to 10d. per hour; smiths, 10d.; carpenters erecting casings and centering, 10½d.; and foremen carpenters, 1s. to 1s. 3d. per hour. Building contractors and their doughty foremen are splendid organisers and controllers of labour; consequently the cost of erecting a building is reduced as nearly as possible to the minimum in the case of the lump-sum contract. I refer, of course, to a contract based on an estimated amount of the cost of all labour and materials, such amount having been tendered in a bona fide competition. On the other hand, the cost of erecting a building approaches the maximum when labour and materials are paid for as day work. The following table has been prepared to show at a glance the advantages of the lump-sum contract, and the approximate percentage of the cost of labour:—

| Trade. | Approximate Percentage of the Cost of Materials and Plant. | Approximate Proportion of the Cost of Labour. | |
|------------------|--|---|-----------|
| | | per cent. | per cent. |
| Bricklayer | 67 | 24 | 9 |
| Mason | 40 | 55 | 12 |
| Slater | 80 | 15 | 5 |
| Carpenter | 70 | 27 | 3 |
| Joiner | 37 | 62 | 11 |
| Smith | 80 | 15 | 5 |
| Plumber | 75 | 16 | 9 |
| Plasterer | 45 | 13 | 14 |
| Glazier | 85 | 15 | 4 |
| Painter | 40 | 56 | 4 |

It will be noticed that the percentage of the cost of labour increases with the introduction of day work. Under Contract "A" the building owner receives the full benefit of the organising and energising abilities of the contractor. In the case, however, of Contract "C," it is not to the contractor's immediate advantage to push forward the work with the utmost vigour, unless he is anxious to remove his plant. As a matter of fact, the longer the workmen are employed in day work, and the greater the number, the larger is the contractor's profit, seeing that he receives a premium varying from about 5 to 15 per cent. on all wages paid in that connection. The table is, of course, theoretical; but I am convinced that the figures can be supported by general experience. A salient point in connection with the lump-sum contract is that the contractor, in the absence of any special arrangement to the contrary, stands to gain or lose on the amount of his estimate, no matter what fluctuations may take place in the wages rates of the workmen. In equity, however—putting aside the question as to what should happen in the case of a decrease—it would appear that some allowance should be made to the contractor when he is compelled to make a rise in wages under the force of circumstances which could not be foreseen before the date of his tender. This allowance would have to be arrived at by ascertaining in the first place the value of the measured work executed after the rise in wages takes effect, and then adding a percentage on the proportion of the cost of labour, differentiating between mechanics and labourers. Some idea of the process may be gathered from Laxton's "Price Book" (pages xxvi, xxviii). It should be observed, however, that Laxton appears to have overlooked the factor of the mechanic's labourer. For instance, in his example of plasterers receiving an increase of 3d. per hour over a rate of 11d., the addition should be 1.22nd of the proportion of the account attributed to plasterers' labour only, that is excluding materials, plant, and plasterers' labourers. In this regard every contractor should be dealt with on its own merits, as the proportionate value of labour to materials and plant varies in each trade according to the nature of the materials and the architect's designs. The following proportions might apply to ordinary public buildings or first-class residences:—

| Trade. | Approximate Percentage of the Cost of Materials and Plant. | Approximate Proportion of the Cost of Labour. | |
|------------------|--|---|-----------|
| | | per cent. | per cent. |
| Bricklayer | 67 | 24 | 9 |
| Mason | 40 | 55 | 12 |
| Slater | 80 | 15 | 5 |
| Carpenter | 70 | 27 | 3 |
| Joiner | 37 | 62 | 11 |
| Smith | 80 | 15 | 5 |
| Plumber | 75 | 16 | 9 |
| Plasterer | 45 | 13 | 14 |
| Glazier | 85 | 15 | 4 |
| Painter | 40 | 56 | 4 |

In seeking information in connection with the above proportional values, I found that in Leaning's standard work on "Quantity Surveying" (page 467, fifth edition), the Bricklayer's trade is divided into 75 per cent. for labour and 25 per cent. for plant and materials—evidently a clerical error; one which in no way disturbs my confidence in the book, and which can be adjusted by reversing the proportions. There may, however, be some surveyors present who consider that Leaning's proportions should remain as printed, in order to meet the "slowing down" on the part of bricklayers, a subject which was discussed here in 1901, at the reading of the late Mr. Thomas Blashill's valuable paper on the then "Condition of the Building Industry." I would recommend everyone who is interested in the cost of labour to read that paper, and the reports of the discussions which followed. I have done so myself, no doubt absorbing many ideas which I shall reproduce this evening with what an unfriendly critic might describe as "singular fidelity." In reinforced-concrete buildings the cost of labour is something between 50 and 60

* Read at the Ordinary General Meeting of the Society on Monday, April 15, 1912.

per cent. of the total cost of the structural work as compared with an approximate 40 per cent. in the case of ordinary brick-and-stone buildings. There is very little difference between the cost of the finished reinforced concrete and that of brickwork, bulk for bulk, and the great saving effected by building in reinforced concrete is, of course, due to the extraordinary thinness which is permissible in walls, piers, &c. A brief reference may perhaps be made here, for the benefit of prospective building owners, to certain recognised rules governing the cost of both labour and materials; rules which, if followed, will place the uninitiated in a fair way to obtain an estimate approximating to the minimum cost of any proposed new building, and also enable him to have the works carried out for a sum within a reasonable margin of the estimated amount:—

1. Employ a properly-qualified architect who, while being a successful man, can yet give personal attention to his work.

2. Provide for compliance with the requirements of the Building Act or of the local authorities, and respect the legal rights of adjoining owners.

3. Specify, if possible, the use of the best building materials, and thus save the cost of carriage, and at the same time derive the utmost value from local labour.

4. See that bills of quantities are prepared by a properly-qualified surveyor.

5. The building owner's exact and final requirements should be embodied in the architect's drawings and specification before they are handed to the quantity surveyor.

6. Pay attention to the builders of sound financial standing and of good reputation.

7. The builder should be called upon under the terms of the contract to make good all damage caused by the building to adjoining property; to insure against loss by fire, and provide for all risks and responsibilities enforced by the various Acts of Parliament, and such other matters as may be accepted as current in each trade for competent workmen.

8. Employ a clerk of the works whose integrity and other qualifications are undoubted, and pay him a salary worthy of his position of trust.

9. Avoid variations; they are expensive, and usually render the work being completed within the period specified in the contract.

With reference to the responsibilities enforced by the different Acts of Parliament, I understand that the coming Insurance Act will in no way alter the law relating to accidents, and that, therefore, contractors will continue to insure against injuries to their workmen, as before. As to the responsibility for the payment of fair wages, I may refer here to a circular which was issued to various councils in September last by the Local Government Board, setting forth the clauses recommended for general use in Government contracts by the Fair Wages Advisory Committee. Quoting from the circular: "It appears to the Board that the policy adopted in the case of Government contracts should be followed in the case of all contracts for the execution of works, or the supply of materials, which are entered into by local authorities, or by or on behalf of any committee wholly or in part appointed by a local authority. Whilst they are aware that many local authorities specify in their contracts conditions to be observed by the contractor as to the cases of wages, and other matters affecting persons employed by him, they do not think that in every case the authority should give the matter careful consideration with the view to the introduction in the contracts of clauses on the lines of those inserted in Government contracts." Of the clauses referred to the following is the most important:—

"The contractors shall in the execution of this contract observe and fulfil the obligations upon contractors specified in the resolution passed by the House of Commons on the 10th March, 1909—viz., 'The contractor shall pay rates of wages and observe hours of labour not less favourable than those commonly recognised by employers and trade societies (or, in the absence of such recognised wages and hours, those which in practice prevail amongst good employers) in the trade in the district where the work is carried out. Where there are no such district, those recognised or prevailing in the nearest district in which the general industrial circumstances are similar shall be adopted. Further, the contractor of employment generally engaged in the district in the trade concerned shall be taken into account in considering how far the terms of the Fair shall be prohibited from transferring or assigning directly or indirectly, to any person or persons what in any portion of his contract without the written permission of the Department. Subletting, other

The following Comparative Statement (taken from "London Statistics," vol. xxi., issued by the London County Council) shows the Weekly Wages and Hours of Labour in certain Trades in London, Paris, Berlin, and Brussels:—

| Trade. | London (1909). | | Paris (1909). | | Berlin (1909). | | Brussels (1909). | |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|-----------------|
| | Wages per week. | Hours per week. | Wages per week. | Hours per week. | Wages per week. | Hours per week. | Wages per week. | Hours per week. |
| Bricklayers | 43/9 | 50 | 38/5 | 60 | 39/1 | 53 | 23/9—27/7 | 66—69 |
| Carpenters | 43/9 | 50 | 43/2 | 60 | 40/1 | 53 | 24/4—28/8 | 66—69 |
| Joiners | 43/9 | 50 | 38/5 | 60 | 32/11 | 53 | 23/9—29/0 | 66—69 |
| Plumbers | 45/10 | 50 | 38/5 | 54 | 32/1 | 53 | 23/9—27/7 | 66—69 |
| Painters | 35/5—37/6 | 50 | 35/5 | 63 | 29/9—29/5 | 53 | 21/1—24/10 | 66—69 |
| Labourers (Bricklayers) | 29/2 | 50 | 21/0 | 60 | 25/8 | 53 | 18/6—19/4 | 66—69 |
| Roofers | 39/0 | 48—54 | 33/7 | 70 | 37/3—38/10 | 53 | 21/1—26/9 | 56—60 |
| Fitters | 39/0 | 48—54 | 33/7 | 60 | 34/0—33/12 | 53 | 20/1—23/7 | 56—60 |
| Smiths | 39/0—48/0 | 48—54 | 33/7—40/0 | 60 | 34/0—31/2 | 67—60 | 22/5—26/6 | 56—60 |

The figures speak for themselves, and it is evident that the London mechanics occupy a very favourable position.

than that which may be customary in the trade concerned, shall be prohibited. The contractor shall be responsible for the observance of the Fair Wages Clause by the sub-contractor."

A schedule of labour rates should be attached to every form of contract, the rates named being those which must be actually paid by the contractor. In the case of a lump-sum contract the schedule of labour rates to be allowed to the contractor for labour in day-work on extra works should contain a clause of the following description:—

"The above rates are those which are understood to be the standard rates of wages appertaining to the various trades in the district, and to be actually paid to the men employed. An allowance of 10 per cent. will be made to the contractor upon the wages paid to the men, to cover profit, superintendence, and the use of all tools, sharps, scaffolding, &c. In the event of any changes being made in the wages of the workmen during the continuance of the contract, corresponding changes will be made in these rates."

In many cases the rates can be verified by applying to the Master Builders' Federation or to the surveyor to the local authority of the district concerned. I may here draw attention to the February number of "The Board of Trade Labour Gazette," which contains an interesting article dealing with the minimum rates of wages required to be paid in contracts carried out for public bodies in Belgium. It appears that the minimum rates prescribed there for mechanics vary from 24d. to 44d. per hour—modest amounts which no doubt insure a living wage under local conditions. There is little that is new in the modern system by which the payment of fair wages is encouraged by the State. As you are aware, the wages paid at one time regulated in England by Acts of Parliament, and according to Froude, with excellent results. It is recorded in his "Reign of Henry VIII.," that the working-classes of this country were "in a condition more than prosperous." The wages at that time were fixed "at a maximum," but it appears that this point of the law was not rigidly enforced, and at a later date a sliding scale was introduced. Froude refers to it as follows: "On the one side Parliament interfered to protect employers against their labourers; but it was equally determined that employers should not be allowed to abuse their opportunities; and this directly appears from the 4th of the 5th of Elizabeth, by which, on the most trifling appearance of a depreciation in the currency, it was declared that the labouring man could no longer live on the wages assigned to him by the Act of Henry, and a sliding scale was instituted by which for the future wages should be adjusted to the price of food." I must now deal with my subject so far as it relates to the maintenance of buildings. Whatever may be the defects which are discovered in the form of contract under which a building is erected, the costs and penalties of such defects are confined, as a rule, to that particular building, but in contracts for works connected with the maintenance and repairs of the numerous buildings under the control of Government departments, county councils, and other public bodies, the matter becomes more serious on account of the recurrent nature of the work and the consequent necessity of meeting with equal recurrence during the period which such contract is in force, the costs resulting from errors in the agreed terms or prices. In the

first place it is most essential that the schedule under which the work is executed and paid for should be sufficiently comprehensive to allow for the admeasuring of all frequently recurring items of repairs in each trade. A good example is the War Office schedule, which was compiled under the supervision of a master of detail and tabulations, Mr. J. T. Huret, the author of the "Surveyors' Handbook," with which we are all familiar. I think it will be admitted that a staff of experts should be employed on the work of compiling a schedule of any importance, as no man can be master of the details of every trade, and the schedule should be at once a specification and price-book. It should, of course, be amended from time to time, striking out obsolete items, bringing the prices up to date, and accommodating any new items which may be reasonably suggested by the surveyors who measure up the work and check the prices in the accounts. In a properly-conducted maintenance contract the expenditure incurred over several years would show the cost of measured work and day work in something like the following proportions:—

| | |
|---|---|
| Measured work, covering 65 per cent. of the total materials and labour expenditure. | Labour 25 per cent. of the total expenditure. |
| Day work (in jobbing repairs)..... | Materials 10 per cent. of total expenditure. |

Here again, my mission is to point out that day work, although inevitable, should be restricted as much as possible, and in no instance should the cost be allowed to exceed 50 per cent. of the average annual expenditure. A case was recently brought to my notice in which various works of maintenance were carried out for a certain department under a schedule at a cost of about £4,400, and of this total the day work charges did not amount to 5 per cent. No doubt this is an unusually low percentage, but it shows what may be done under proper management. Surveyors and clerks of the works have to be very wide-awake if they wish to hold their own in a maintenance contract, for builders seize every opportunity to do what may be termed "good business," and they are not to be blamed, except when "good business" leads to "sharp practice," and "sharp practice" to actual dishonesty. Thus, in falling into the line of least resistance, it sometimes comes about that orders are given for work to be executed as day-work instead of measured work. And there are many temptations to oblige the contractors in this way. In decorative work, for example, if the painters' work is done as measured work the clerk of the works has to be on the spot in order to see that the specified third coat of paint does not occupy the place of the second; but in day-work, while still supervising, he need not put himself to much trouble, for the contractor's foreman and painters will be prepared to make a long job of it, and will put on as many coats as are specified, all labour and materials being paid for. It is obvious that in measured work which is paid for at schedule prices covering the cost of all materials and labour, the contractor's foreman, if he wants to show a profit, must hustle the workmen and contrive to finish the job at the least possible cost to his employer. The desire to do everything as

day-work, therefore, be understood. Day-work calls for no measuring on the part of the surveyor, and insures peace and quietness for both sides—the employers and employed. The only drawback is the extra cost. Experience shows, however, that this extra cost is a serious item; indeed, it may be taken as a well-attested fact that decorative works, repairs, and alterations, connected with a maintenance contract, cost from 50 to 100 per cent. more if executed as day-work instead of measured work. I am told, however, and it is possible to get work executed as cheaply as day-work as by measured work, and labour is performed by the same group of conscientious men, properly supervised, and that the prices for "materials" were in general proportion to the prices for "materials and labour in fixing." The possibility is, however, somewhat remote, especially in connection with large contracts carried out for public bodies, and it is well known that men do not work so strenuously for the latter as for private individuals. Can this state of things be due to the absence of persistent and zealous supervision on the part of representatives of public bodies, or to a wayward sense of duty on the part of workmen? Whatever be the cause, there is a ready remedy. By means of efficient supervision much that is really marvellous has been accomplished according to early history, as men who had the misfortune to be captured or slaves, and living workers possessing very doubtful skill. And while the armed taskmaster's sudden times would not be tolerated in those days, there is no reason why public bodies should not employ an adequate number of clerks of the works and foremen on the works of supervision, which, after all, is the secret of economy in all building operations so far as labour is concerned. It may be noted, too, that workmen do not, as a rule, object to supervision, provided that it is exercised by men who are reasonable and just in their dealings, and thoroughly competent to direct on all points connected with the work in progress. A healthy workman, with a sound mind in a sound body, finds no fault with anyone whose example and well-chosen words, and authority, persuade him to do an honest day's work, from which he gains some experience of the joy and pride of vigorous life and achievement. On the other hand, he has an unveiled contempt for a slack master, whose orders he will accept and carry out in the same spirit in which they are given—"like master, like man." The proper examination of the contractor's accounts is highly necessary if the expenditure and cost of maintenance carried out for public bodies is to be controlled and kept within the required limits. For instance, the examination of day-work accounts should not be relegated to a man with no more professional experience than that of an office-boy or pupil, but should be examined, in conjunction with the measured work accounts, by a surveyor or the expert in respect of having the highest technical qualifications. Further, in all cases where works are carried out partly as "measured" and partly as "day-work," the whole of the accounts should be checked, or at least carefully scrutinised by the surveyor who has been entrusted with the "measuring up," and who has gained in the process of measuring a full knowledge of the work as actually executed. Efficient examination will reduce expenditure, while inefficient examination, which is always recognised by the contractors, will increase. For the benefit of some of the junior members of the profession, I venture to name the following rules which should be borne in mind when examining day-work accounts:—

1. Watch the proportion of charges for labour and materials. If the labour is widely out of proportion to the amount of materials supplied, there is need for investigation.

2. When examining the weekly vouchers, note the names of the workmen and the total number of hours charged for in respect of each. It is not uncommon to find that no more men are employed than the regular number required to do the work, and that a large number of hours are charged on day-work in the absence of special arrangements. In the absence of special arrangements, the foreman should be charged with the foreman's work, except in cases where the foreman is doing work as mechanics.

3. See that the materials charged for are not in excess of what was required for the work. For instance, in setting gables requiring a supply of, say, 20 bricks, a surveyor would be quick to make an adjustment if 500 bricks were charged for in error. Again, in plumbers' work the quantity of materials charged for should be in accordance with the ordered joints, etc., found in the work.

4. See that there are no items in the day-work accounts which are also charged for in the measured work accounts. In large contracts such items may often be found. They creep in, to put it mildly, only, more by accident than design. Stone landings, stairs, posts, floor-boardings, slate roofing, glass, and other items, which, according to particular circumstances, may be passed either in day-work or measured work accounts, are sometimes claimed in both. "Labour in fixing" and "preparatory labour" in decorative work may also be charged for in duplicate. In one occasion, when examining accounts for decorative work, I found that the amount of labour charged for as day-work under the heading of repairing and rebuilding was 10 times as much as was claimed according to a liberal estimate, sufficient to do the whole of the preparatory and finishing work which was charged for in the "measured" account. In this case only a small quantity of day-work should have been charged for in respect of repairs.

5. See that ample descriptions of the work done by the different workmen in day-work are given on the weekly vouchers.

6. Obtain separate vouchers and accounts in connection with the different kinds of work, so that the cost may be compared with the estimated amounts.

7. In checking the prices of items which are not in the schedule, do not be influenced by "sporting charges." For instance, if a 1s. per foot run or super is a reasonable or "pro rata" charge, do not pass 1s. per foot in the event of the contractor having charged more than 1s. per foot, but insist that this would display weakness and ineffectiveness.

Although in following such rules as the foregoing the total amount of any particular batch of accounts may not be reduced to any large extent, the moral force of the surveyor's queries and investigations would be of very far-reaching and of inestimable value to his employer. In dealing with an item, and in connection with the cost of labour, it should be noted that under clauses already referred to in the case of the erection of a new building, the maintenance contractor should take all risks and responsibilities in regard to damage to property or injuries to workmen in connection with "measured" or "day-work," and also undertake to pay "such wages as may be required for the employment of each trade for competent workmen." The actual labour rates paid should be shown on all day-work vouchers on which, as before described, a percentage should be allowed to the contractor, covering profit, superintendence, and the use of all tools, sharps, scaffolding, plant, etc. This system is preferable to that in which the rates shown on the vouchers and bills are a gross sum of profit, and furnish no direct evidence as to the amounts actually paid to the different workmen. In addition to the wages rates shown on the table printed in the appendix, the following are the current rates which are paid to some other classes of workmen employed in connection with the maintenance of buildings in London:—

| | |
|--|--------------------|
| Rate per hour actually paid to the workmen, so far as can be ascertained. | |
| Painters | 8s. 6d. to 10s. |
| Hammermen | 8s. 6d. |
| Engineers on erecting and erecting to each apparatus, and to fire-extinguishing appliances | 8s. 6d. to 9s. 6d. |
| Assistants do. | 7s. 6d. to 8s. |
| Stokers | 7s. 6d. to 9s. |
| Engineers attending to lifts | 8s. 6d. to 9s. 6d. |
| Assistants do. | 6s. to 7s. 6d. |
| Electricians attending to electric bells, etc. | 9s. 6d. |
| Electricians and wiremen | 9s. to 10s. |
| Wiremen's labourers | 7s. 6d. to 9s. 6d. |

The complex functions of the engineering trades are beyond the scope of this paper, and I can merely express the opinion that money is well spent in the payment of good wages, in order to secure thoroughly reliable men in connection with the heating and lighting of any large blocks of buildings. The duties call for the exercise of much special skill and zeal. A really good workman, for example, will economise in fuel, and yet obtain the required heating power over his furnace. Details as to working hours, overtime, outdoor allowances, etc., will be found in the "By-laws and Regulations" of the Amalgamated Society of Engineers, 110, Peckham-road, S.E., and the "National Agreement as to Working Rules and Conditions" issued by the National Association of Master Heating and Domestic Engineers,

12, Great James-street, Bedford-row, W.C. Particulars as to the working rules, etc., of the electrical trades may be obtained from the head office of the Electrical Trades Union, 26, Cannon-street, Manchester, and from the Electrical Contractors' Association, 20, Bucklersbury, E.C. The cost of labour in connection with maintenance frequently becomes abnormal, owing to lack of forethought and a "penny wise, pound foolish" policy adopted in the construction of buildings. This is especially noticeable in regard to dwelling-houses which are built "to be let or sold" (the latter preferred), and no doubt a great amount of avoidable expense is incurred. Naturally, seeing that the great bulk of the work done by builders in this country is comprised in the erection of dwellings. It may be safely assumed that in buildings of the class mentioned the materials and mode of construction are not in the first place such as will tend to minimise the cost of maintenance. Indeed, the old question is still raised from time to time as to where the local authorities are while some of these buildings are being erected—these "blots on the landscape" which will no doubt be removed in the course of time, while the pernicious influence of the jerry-builders on the workmen who did their bidding in deceptions and contrivances will extend beyond human arrest. I myself have seen suburban houses "run up" by gangs of nondescripts in defiance of "Building Acts" and all the rules of building construction, the bricks being put together in a manner which would have severely shocked an old-fashioned bricklayer, one accustomed to set every brick with that deft trowel action, blending of mortar, and precise carefulness which would do justice to a foundation stone. The want of forethought to which I allude is that of frequently neglecting to put foundations to roof, and nearly always in the treatment and placing of water-pipes and cisterns. It has been stated in an article in an evening paper of February last, when the plumbers were greatly in demand, that "it is only in England that the young tendrils of lead-pipe twine in peril of the first frost." Poetical, but doubtless true! Cisterns, too, (the indispensable vases of the bathroom) are frequently exposed to frost and fixed in queer spaces under the roof, where they are inaccessible to any tenant who is not an accomplished gymnast or contortionist. The following case, which occurred within my own experience, is a sample result of such arrangements. I was the tenant. The cistern in the roof had the usual ball-valve, frequently supplied with a "rope" and if make matters worse there was no stop-valve on the rising main—an item which should be compulsory in every house. Consequently I had to call in a plumber to put the ball-valve in order, and in due course he came, accompanied by his mate, or, rather, accomplice. Now, to gain access to the ball-valve, the plumber had to crawl on the naked ceiling joists, and find the overflow pipe from the cistern in his way, he promptly laid it flat, at the same time drawing in the part which went through the outer wall. It may seem incredible, but it is the fact that those men went away without replacing the overflow pipe, and, of course, later on in the dead of night, the ball-valve had another release, and the water poured out of the overflow pipe, caused a serious amount of damage. Then, again, leading to the roof-space there is the trap-door, which is frequently of mean dimensions, and when a new eistern is required it is found impossible to put one of sufficient size through the opening; rendering it necessary to cut away ceiling joists and lath and plaster work, and afterwards make good at considerable cost. I know of one instance in which a surveyor became jammed in a small trap-door opening while endeavouring to take some measurements; although it is true that his body was particularly well nourished. The story goes that it required the services of two men and an apprentice to release him from his painful and ridiculous position. The foregoing might be commonly found in suburban districts, by landlords and tenants alike, in the planting of

TABLE OF WAGES RATES PER HOUR CURRENT IN VARIOUS PLACES IN THE UNITED KINGDOM.

The rates shown in this Table are, so far as can be ascertained, those which are actually paid to the different workmen.

April, 1912.

| Locality. | Excavator. | Bricklayer. | Mason. | Slater. | Carpenter & Joiner. | Plasterer. | Plumber. | Smith. | Gasfitter. | Painter. | Glazier. | Paperhanger. | Labourer (General). |
|--------------------|------------|-------------|--------|---------|---------------------|------------|----------|--------|------------|----------|----------|--------------|---------------------|
| SCOTLAND— | d | d | d | d | d | d | d | d | d | d | d | d | d |
| Aberdeen | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| Dundee | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| St. Andrew's | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| Stirling | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| EDINBURGH | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| Glasgow | 3 1/2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 1/2 |
| ENGLAND AND WALES— | | | | | | | | | | | | | |
| NEWCASTLE-ON-TYNE | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Darlington | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Barrow-in-Furness | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Douglas (I. of M.) | 5 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 5 1/2 |
| York | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Blackburn | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Barnley | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| LEEDS | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Accrington | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Blackburn | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Huddersfield | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Bochdale | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Barnsley | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| MANCHESTER | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Wigan | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| LIVERPOOL | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Holyhead | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Buxton | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| St. Asaph | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Bangor | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Chester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Hanley | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Nottingham | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Derby | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Creighton | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Leicester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Great Yarmouth | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| BIRMINGHAM | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Ely | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Ray | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Huntingdon | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Northampton | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Worcester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Cambridge | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Be. lford | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Colchester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Gloucester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Can. ar. rhen | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| At. e. b. r. y | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Chelmsford | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Merthyr Tydfil | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| St. Albans | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Dorchester | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Swansea | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Newport (Mon.) | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| LONDON | 7 | 10 | 10 | 10 | 10 | 11 | 11 | 10 | 9 | 9 | 9 | 9 | 7 |
| BIRISTO | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Cardif | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Essex | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Barry Dock | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Basingstoke | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Salisbury | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Dover | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Brighton | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Portsmouth | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Eastbourne | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Exeter | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Bournemouth | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Rye (I.W.) | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Weymouth | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Torquay | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| Falmouth | 6 1/2 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 6 1/2 |
| IRELAND— | | | | | | | | | | | | | |
| Londonderry | 4 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 7 | 7 | 7 | 7 | 4 |
| Belfast | 4 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 7 | 7 | 7 | 7 | 4 |
| Sligo | 3 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 7 1/2 | 7 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 3 1/2 |
| Dundalk | 3 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 7 1/2 | 7 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 3 1/2 |
| Malinbeg | 3 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 7 1/2 | 7 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 3 1/2 |
| Limavick | 3 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 7 1/2 | 7 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 3 1/2 |
| Waterford | 3 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 7 1/2 | 7 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 6 1/2 | 3 1/2 |
| Cork | 4 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 8 | 8 | 8 | 8 | 4 |

* Mason "fixer" receives 11d. † Workmen in Ireland are in many cases paid at weekly rates of wages. The approximate rates per hour are shown here for purposes of comparison.

innocent-looking trees close to walls and over the run of drains, or by allowing ivy and other creepers to grow up the eaves-gutters, and among the slates or tiles on the roofs. I need not refer to the results. Londonderry, however, are not all deficient in forethought. Many years ago I met one who had certainly exercised the faculty for the benefit of his tenants. I was negotiating with the object of renting a small house in the country, and while on the spot I raised a question as to the cost of emptying the cesspool—one of those abominations which are still to be found in this twentieth century—and the landholder informed me in a sort of stage whisper, that the cost would be merely a trifling sum, as he had run "an overflow drain from the cesspool to the ditch on the other side of the hedge." Mr. Rogers, in his recent paper on "An Evening in the In-

stitution Library," wondered what sort of man was the author of a book called "Talks on Manures." Well, I think he must have been something like this landlord of mine, who, at any rate, could have written a common-sense volume, entitled "Confidential Talks on Sewage Disposal." In no way is the cost of labour affected so much as by the efficiency or inefficiency of the workmen. While there are plenty of efficient men to meet all ordinary requirements, it seems to be the fact that the percentage of inefficient men in the labour market is steadily increasing. This is no doubt largely due to the gradual collapse of the old-fashioned system of apprenticeship, and to the ease with which men can get enrolled as craftsmen in some of the trade-unions. On the whole, workmen do not take the interest in their work that they used to do. This is especially noticeable in large

centres, where trade union rates of wages are paid, and where the workmen receive no sympathetic recognition from a master builder, but are in the hands of a foreman, and liable to be dismissed at a very short notice. And although the efficient and industrious hands should certainly be paid more than their inferiors, the bare minimum rate, with too few exceptions, meted out to the good, bad, or indifferent. It is not always borne in mind that trade union rates of wages are only "minimum" rates; no objections are made to the payment of higher rates. When workmen display skill in craftsmanship and give proof of possessing trustworthy qualities—and England can still boast of many such men—it is important that they should be paid something more than the wages which are paid to men of a lower standard, if only to arouse a spirit of emulation. It is far from my intention to find fault with trade unions, for they fulfil many good functions, one of which is the propagation of unconsciousness, perhaps of an uplifting sense of brotherhood among working men, a brotherhood which demands, in effect, that the strong shall help the weak. I think, however, that the unions should impose more rigorous tests on all candidates for membership, seeing that unskilful craftsmanship must surely increase the cost of building and affect the ultimate prosperity of the industry. The Ulster County Council has for many years been taking an important part in promoting the efficiency of workmen. Classes in connection with the engineering and building trades are held in several institutions in London, and schools of building have been established in Brixton and Dalston-lane which promise to be of great benefit to young men, as they can there receive practical teaching under some what similar conditions to those met with on buildings or in builders' shops. I have seen it stated, however, that a large percentage of the students who attend these classes do not eventually enter the building trades, but become clerks. If the statement be true, all one can say is that these clerks will be none the worse for possessing some technical knowledge, if it be only of tools and the method of using them. Indeed, I am of opinion that every young man who hopes to become a householder should study the art of building construction, for we all know what happens in nine cases out of ten, when the inexperienced amateur mechanic gets to work. There are some journalists who have actually gone so far as to discover humour in the fact that, when a City clerk in his suburban villa attempts to trim a new india-rubber washer in a hot-water tap, the result almost invariably is a contreforts, bristling with elements of danger to the structure as well as to life and limb.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

An extra general meeting (ordinary) of the Royal Institute was held at Conduit-street, W., on Monday last, the 15th inst. Professor Reginald Blomfield, A.R.A., M.A., Vice-President, occupied the chair. Professor Blomfield explained that the extra meeting had been arranged for the purpose of continuing the adjourned discussion of the two papers on "The New Responsibilities of Architects," read by Mr. W. Henry White and Mr. Edward Greenop, at the meeting of December 18.* Before resuming the discussion, Mr. Saxon Snell read his paper, as arranged by the Practice Standing Committee, on

THE R.I.B.A. CONDITIONS OF CONTRACT: SOME POINTS FOR REVISION.

It is neither usual nor desirable that standing committee's reports should be published, unless with the approval, and under the sanction, of the Council; but I do not think I am indiscreet in quoting—for the purpose of opening my subject, the preamble of a

* A report of this meeting appeared in the BUILDING NEWS, Dec. 23, 1911, and our own comments thereon in our issue of Jan. 5, 1912.

memorandum drawn up by the Practice Committee and submitted to the Council in 1907:

Questions have arisen as to the effect of a building contract under the form of Contract and Conditions recommended for use by the R.I.B.A. These documents were settled in their present form in 1903 in conjunction with the Institute of Builders and the National Federation of Building Trade Employers of Great Britain and Ireland.

The forms previously in use were settled in 1879, and have since continued to be used.

On the settlement in 1903 this was altered at the instance of the Institute of Builders. Certain matters dealt with by Clauses 4, 9, 16, 19, and part 3 of the schedule to the architect's contract were introduced into Clause 30 which have been held to destroy the effect of a certificate given by the architect. The clause was altered, and was widened so as to lay open to review every certificate, whether interim or final, and (subject to certain reservations) every opinion and decision of the architect.

It has been held by the Court of Appeal, in the case of *Robins v. Goddard*, L.R. Vol. 2, p. 50, that the effect of these alterations is not only to deprive the architect's certificate of all finality as between the building owner and the contractor, but that it has also been held by the same court, in the case of *Goddard (building owner) v. Ferguson (architect)*, that an architect who has given a certificate which is successfully challenged by a building owner in an action brought to recover the amount so certified to be due to him is liable to repay to his client the building owner's costs incurred in instituting the action. In giving judgment the learned Official Referee based his opinion upon the ground that the architect, in his position of agent for the building owner, must be held to have contemplated that if he gave a certificate the building owner would use it, and that the building owner might resist and incur costs in so doing, and that these costs would be recoverable in contemplation of the architect at the time he undertook to act as such for the building owner. The court in this case refused to give effect to giving a certificate subsequently held to be inaccurate or excessive.

The decision appears to carry with it the conclusion that the architect, acting under the present authorised form of contract, is no longer in the position and clothed with the immunities of a quasi-arbitrator, and would be liable to sue, and that, under similar circumstances, an architect no longer owes a duty of fair and impartial treatment to his builder.

The position as above sketched raises very important questions, not only with regard to the position of the architect, but also as to the position of the building owner and building contractor respectively.

SUB-CONTRACTS.

The average building owner generally imagines that the building contractor is the direct employer of craftsmen in all trades. Indeed, this is implied in our Conditions of Contract. As a matter of fact, we know that in modern contracts it is not unusual to sublet carting, plastering, plumbing, cladding, etc. It must be acknowledged that in Clauses 20 and 28 this matter is dealt with in a manner which meets the difficulty almost. Indeed, it seems to hold the balance admirably between both parties. Clause 20 may be regarded as safeguarding the contractor, and Clause 28 the special tradesmen. Nevertheless, the provision for direct payment to the latter by the building owner is an awkward circumstance, which may yet lead to unexpected decisions in a court of law. The case of "*Crittall v. the London County Council*" is a case in point. My own practice is to nominate the special tradesmen, and to fix the net amount to be paid to them. They are made to understand that they can only look to the building contractor for payment, who is solely liable. On the other hand, I have the provision in the building contractor's contract that he must pay these special tradesmen in full such amounts as I may certify from time to time, and the amounts so paid are not included in any payment to him by the building owner until he (the contractor) can produce evidence that they have actually been paid. The case of "*Crittall v. the London County Council*" is efficient justification for the apparently arbitrary nature of this last provision.

ARBITRATION.

Perhaps the most serious defect of these Conditions is the level of redress is reduced to the level of mere agent for the building owner. He is deprived of judicial powers. It is a position which we think to quote again from the memorandum referred to, "unfair to the contractor, not in the long run to the interest of the building owner, dangerous to the architect, and derogatory to the dignity of our profession." There used to be a clear distinction in our relations to the building

owner, before and during the carrying out of a contract. In the first place, we were his expert advisers in determining what forms the realisation of his desires should take, and his agents in drafting the forms for the purpose of instructing the building contractor. So soon as a contract was entered into between the parties, to our duties as agent to the building owner in superintending the work was added the honourable one of arbitrator upon points of dispute between him and the building contractor. In the carrying out of a building contract, innumerable points of difference may, and, in fact, do, arise between the parties—questions as to interpretation of the drawings and specification, and as to the quality of materials and workmanship. There are infinite grades of excellence in all kinds of work, and the architect has to decide from time to time whether the grade contracted for is supplied. As to whether a certain piece of work, or has not, been done is a question of fact; but as to whether it has been done properly is a matter of opinion, and in giving his opinion the architect is bound to exercise judgment as between the divergent views of building owner and building contractor. Is it not absurd and unreasonable that because one party or the other is dissatisfied with the architect's judgment, a specially appointed arbitrator must be called to decide between the parties? Does it mean that the building owner selects the architect, and that the contractor accepts him, and is not bound to enter into the contract if he distrusts the architect. In the old form of contract, our final certificate was given this character of an award from which there was no appeal (except on grounds of fraud or collusion) by either party. On the whole, the arrangement worked well, and certainly did prevent a good deal of contention as between building owner and building contractor. In the present form no decision of the architect binds either party, and certainly not the final certificate. The architect is reduced to the position of mere agent to the building owner, and as such may be sued for exercising his judgment in a way which may not be endorsed by the arbitrator. In spite of this there are those who assure us that the architect who does his duty fairly and reasonably need not fear the perils of the law; but a case such as that of "*Lanning v. Davis*" scarcely inspires confidence in that comfortable belief. Nevertheless the recent *Leicester* case seems to show that we are not safe even when our final certificate is an award, and that, failing the building contractor, the building owner can sue the architect in respect of alleged defects or deficiencies in the work.

And let me remind you (as Mr. E. T. Hall has pointed out) that in this case the R.I.B.A. was not used, and I gather that the architect's certificate was in effect an award as between building owner and contractor. On the other hand, the R.I.B.A. Conditions do not protect us, as witness the case of "*Ferguson v. Goddard*" and "*Ferguson v. Goddard*." We are shot at from a different direction, but the effect is the same. The position is one of great difficulty; for it seems we can never be certain how far we can be made liable for any act or alleged default under a contract. Failing the practicability of immunity, there is—as far as I can see—but two courses open to us—i.e., either to restore our position as arbitrator (which gives us no measure of safety), or to employ, say, a responsible for the clerk of works, and to insure against our responsibility at Lloyds or elsewhere. We should, however, have to raise the amount of our commission to meet the extra cost to us.

MR. R. L. HARRISON.

sollicitor, in proposing a vote of thanks to the authors of the three papers submitted for discussion, said that he was responsible for the legal side of the R.I.B.A. Conditions of Contract. These had taken five years to make. He claimed that they were good at the time, and they were not bad now. That they needed modernising was not improbable. But he did not think the Institute could ever get a form of Con-

ditions of Contract which would not involve some discussion and disagreement. With regard to the cases quoted by the authors of the three papers, he had not felt particularly horrified. Mr. Edward Greenop had dealt with ten cases, with five covered a period of about ten years. One of these, about the recovery of architects' fees, and another about the custody of the drawings, might be eliminated from the present discussion, because in the first-mentioned case the architect, the man of art, took upon himself the function of financial adviser, and the other dealt with something other than a new responsibility. The next case (Kerr v. Trask and Sumner Webb) was the one about a mural painting. Here the architect specified a certain cement rendering. The case was that during the progress of the work some other material (lime plaster) was for economy's sake substituted. It had struck him, why did not the architect say to the client, "I specified something which, if allowed to dry, may be painted on; but if for your own ends you change my arrangement, I am not responsible for the result." The next case taken (Lanning v. Davey and Saller), which was for negligence, throws no new responsibility on the profession, and could not be said to have created a precedent. The unfortunate architects in this case had the misfortune to meet at first a jury both stubborn and stupid. Leicester Board of Guardians v. Trollope referred to a £100,000 job, which took three years to complete, and consisted of a large infirmary hospital, with nine separate buildings all alike. The architect had made a very ingenious arrangement, by which the floors were to be isolated from the damp soil; upon that isolation depended their very existence. The architect admitted in the witness box that during twelve months he had visited the works ten times. Mr. Justice Channell gave judgment against the architect on the ground that he had not seen to the proper execution of the laying of these floors. The defendant no doubt thought that he had a first-class clerk of works. But the latter let him in. The architect had never asked for any part of the work to be opened up for his inspection. The builders, however, had since taken over a large part of the damages. With regard to the employment of sub-contractors, the practice just described to the effect of Mr. Saxon Spaul seemed a perfectly sound one, provided that the contractor is himself a man sufficiently solid. The architect under such circumstances has no responsibility. The liability of all professional men had been much emphasised latterly. The only safeguard, so far as architects were concerned, was a more strict attention to the business side of their profession. He himself had an architect friend who would be quickly ruined through his unbusinesslike methods, if he made any practice. The habit he would recommend was for architects to put into writing any instruction they might receive. In many, if not most, cases the clerk of works is at the bottom of the trouble. It had often occurred to him that the Institute might organise a kind of guarantee fund. The only sure remedy, however, seemed to be for the architect to have his own clerk of works, and to meet the consequences of any error by charging a higher fee. Architects must not forget that all professional men are servants of the public. Consequently, it is dangerous for anyone representing them to take any steps of reform not in the interests of that public. The architects are agents, and as such are liable to be called to account for any neglect by the servants of the clients. Personally, he was not sure that the architect did not serve his client better if he did not occupy the position of quasi-arbitrator. With regard to *Robins v. Goddard*, and *Goddard v. Ferguson*, he would say, after a careful consideration of the case, that if the building owner had had no remedy from anyone it would have been a scandal. Concerning *Chambers v. Goldthorpe*, he was not at all sure that the decision was really the charter for architects that it was generally supposed to be. It certainly was not a unanimous decision in the Court of Appeal, where Lord

Justice Romer, one of the most distinguished lawyers of his time, differed from the others. Mr. Harrison said he was prepared to admit that in drafting the Conditions of Contract they had made a mistake as to Clause 30. At the time they had believed it would bear only one meaning. But to make any change now would have a far-reaching effect, when the Conditions were being formed the builders said they would come into line only on the condition that everything was referred to an outside arbitrator. The architects conceded the principle, provided that if they were still left masters of the job. If they altered that clause, the public would ask, "Are you altering it for our benefit?" It was for the Institute to decide whether, in the changing attitude of the public, such a course would be a wise policy.

MR. W. H. ATKIN-BERRY,

in seconding the vote of thanks, said he hoped he would not be detracting from the praise due to the authors of the three papers if he argued that they scarcely justified their title of "The Newer Responsibilities of Architects." He had failed to find in them anything that was very new in the way of responsibility. They might certainly have been called "Some of the Responsibilities of Architects." That fact was best illustrated by the cases brought forward by Mr. Greenop. The case of Findlay v. Roques and Carvell was about something outside the province of an architect. It was unwise to form an opinion upon the wording of a judgment, for one must not oneself be in possession of all the facts and details. Often these judgments were based upon one particular point. The next two cases mentioned by Mr. Greenop did not involve any new responsibilities either. If an architect fails to do what he is set to do, it is only reasonable to suppose he will ultimately be held responsible for any subsequent failure. In Lanning v. Davey and Salter there was a miscarriage of justice. But to suppose the case was exposed. Furthermore he gathered all cases that in the end, (Voice: It killed the architect.) So there was nothing in that case either to show a new responsibility. The Leicester Board of Guardians v. Trollope seemed to occupy a very different position. Mr. Harrison had not, in his opinion, quite satisfied those present as to how architects were in future to protect themselves against an action of that kind. The architect may take every possible precaution, and yet through some small devilry on the part of somebody else, something goes wrong. Nevertheless, the architect is held responsible while the builder escapes. C. P. Roberts and Co. v. Hickman and Co. was a case in which the architect had withheld his certificate under the influence of the building owner. If the architect does such a thing as that, he must take the consequences. As to Mr. Greenop's contention that this decision was an entire reversion of Goddard v. Robins, this was, in his opinion, not so. Again, if the architect gives a certificate in a careless manner, surely he is responsible to the owner. In Crittall Manufacturing Co. v. L.C.C., one must ask oneself what course is an architect to take in putting in hand work which he wishes the sub-contractor to carry out. The course which Mr. Saxon Snell has just recommended to them might be followed with advantage. But he would like to know if that would defend the architect, and whether it gave the architect and building owner security. If it does not, what other course is open? Mr. Snell had seemed to hold out an olive branch in his plea for greater simplicity. The present tremendous elaboration of agreements and contracts undoubtedly did create suspicion in the minds of the public. To give particulars of certain things is to run the risk that the things left out may be of still more importance. It would be very desirable if there could be greater trust between the parties instead of their being antagonistic one to the other.

MR. W. WOODWARD.

agreed that really there was no new responsibilities. Fourteen or fifteen years ago an

architect was just as responsible to his client as he is to-day. But what has arisen is a greater desire on the part of clients to bring into the law courts those differences which used to be settled outside. To fight a case now is a very serious, expensive, and perhaps ruinous thing. One very recent case was before the Official Referee, for thirty-one days. He might say that the Referee had conducted it with an acumen and a desire for fairness which was most satisfactory. It had been suggested an architect should explain the Conditions of Contract before using them; but he has too much to do already. The R.I.B.A. Conditions failed in one important respect, and that was with regard to sub-contractors. There is no clause which gives him power to withhold payment from the contractor until the latter can show the receipt of the sub-contractor. The Practice Committee were, however, dealing with the point at the present moment. The Crittall case rested on the fact that the general contractor failed before he had made the payment. The sub-contractor recovered from the L.C.C. Then there were such points as to how far an architect was able to pledge the credit of his client, and how far he was allowed to certify additions without the consent of the client. His own belief was that an architect was empowered to order Extras to any extent he liked, so long as those Extras are not detrimental to the building itself. In practice many architects did order considerable additions without the authority of the client. Mr. Woodward said that if he were a contractor he would not under any circumstances sign a contract where the architect was left sole arbitrator. Human nature was human nature, and the architect must often wish not to have to say he has incurred £1,000 or £2,000 in way of Extras. There is in consequence a risk of bias. The Practice Committee of the Institute had been for some time engaged in the remodelling of the Conditions of Contract, and in the consideration of that important matter—the scale of charges. It was very necessary that the profession should try to get rid of the present ruinous litigation.

MR. DOUGLASS MATTHEWS

contended that when one contrasted the architect's position forty or fifty years ago with what it was at the present day, there were many new responsibilities. In those days the builders did their very best work. There was nothing like the present supervision, and yet they acted fairly to the building owner. Nowadays they knew that the builders were in all probability not practical men at all, but only good organisers. That fact is in itself a great responsibility, for architects are at their mercy. Neither do workmen now take the old interest in their work, the workmen of to-day and of forty years ago being very different people in that respect. For the consequent carelessness the architect is held responsible. Some clerks of works are excellent men; others are accountable for much of the bad work. If the architect cannot be trusted by the employer it is a serious thing. The plan usually adopted is that he should be a go-between for both parties, and trusted by both.

MR. LOVELL

said that at the recent International Congress of Architects in Rome there were references to this question. In France the sub-contractor almost entirely disappears, because each trade has its own separate contract. In Italy the architect is practically a contractor himself. In Spain and in South America there are two architects appointed, with a third to act as arbitrator. His own idea was that it was an exceedingly difficult thing to determine that the architect was doing more than an agent of the building owner. That there should be somebody in the nature of an arbitrator seemed only right. The trouble usually seems to spring from the clerk of works. He would suggest that the clerk of works should come from the architect's own office; this would ensure a better class

of work, and would also afford an excellent training for the young architect.

MR. H. D. SEARLES-WOOD

thought that architects ought to consider the public, and not let them think that the profession was trying to safeguard itself too much. An architect's responsibilities were the interests of his clients. The contractor's responsibilities ceased with the issue of the final certificate; but not those of the architect.

MR. G. R. BIANCO WHITE

(barrister-at-law) suggested that architects should secure themselves with the client at the beginning of the job, by telling him that the plans prepared were only provisional, and might need revision during the progress of the work. Unless some such course is taken, the architect has no authority to make any deviations. The conclusion to be drawn from all that had been said in connection with the papers was that until the revised Conditions of Contract are ready every architect should read through the existing form with extreme care, and satisfy himself that he personally approves of each clause. If there is one he does not approve of, he should change it.

Mr. Alan Munby, Mr. G. Ernest Field, Mr. Douglas Wood, and Mr. Matt Garbutt further contributed to the discussion.

MR. MAX CLARKE

remarked that it was quite possible for the architect to protect the sub-contractor by inserting a clause empowering the architect to see the general contractors' receipts for payment. In the Leicester case there were undoubtedly great variations from the original plans. Furthermore, the architect admitted that he had not seen any of the flooring. His own suggestion for the heading of the three papers submitted was "The Greater Difficulties in the Carrying Out of the Architect's Duties." The responsibilities were the same; but the complexity of the work was quite different, as for instance in the number of the sub-contractors. Again, all materials now require careful supervision. It would appear as if architects ought to do one quarter the work they do at present, and be satisfied with the proceeds. In the matter of employer's liability and workmen's compensation, the Institute Form needed bringing up to date. However, he thought they were making a great deal too much trouble over the Conditions of Contract, and that they were not paying enough attention to the carrying out of their buildings. In fact, they should talk less and do more.

PROFESSOR REGINALD BLOMFIELD.

in putting the vote of thanks, admitted that he felt rather more fogged at the end of that evening's discussion than he was at the beginning. In his own practice he did not, as a rule, have any sub-contractor, as he preferred to make separate contracts for each. By so doing he dealt with the man himself, and further, saved the building owner the profits which would otherwise go into the pockets of the building contractor. Architects were now, he considered, saddled with responsibilities undreamed of thirty or forty years ago. Builders have altered entirely since that time, and clients have altered also. There is no longer the same standard of practice, too, are so complicated. Architects have now to know such a lot; and the building owner's extreme desire to get the last sixpennyworth of value makes people extremely hard. Undoubtedly the architect is sometimes to blame, and they have not always done the best by their client. He did not think any architect wanted to shirk his responsibilities. But they do resent having to pay for things which they cannot control. The only thing apparently for them to do was to attend to their work, and to keep up their standard of attainment.

Mr. Saxon Snell, Mr. W. Henry White, and Mr. Edward Greenop then acknowledged the vote of thanks. Mr. Greenop replied to some of the points in the discussion arising out of his paper read in December last.

THE UNIFORM FORM OF CONTRACT NOW UNDER DISCUSSION AT MONTREAL.

Members of the Province of Quebec Association of Architects, on Tuesday, March 26, met in their rooms at Montreal and discussed the proposed standard contract. Mr. J. Venne presided. Owing to a quorum not being present, the discussion was informal, several alterations being made and others suggested to the special committee which drew up the form. The contract is printed in English and French. The committee will consider the various amendments and suggestions, and the question will be discussed at a later date. As given below, the contract is in the form as amended by the meeting, and must not be regarded as official or final. The agreement and conditions were thoroughly debated, clause by clause, the alterations made being comparatively few.

The president explained the history of the contract. About two years ago, he said, the Montreal Builders' Exchange brought up the matter and submitted a model contract. This was discussed and referred back, with the result that it was dropped for some time. Then the Builders' Exchange again submitted a model contract, and as the result of negotiations a special committee of the Association drew up the form to be discussed that night. The Exchange had practically accepted the contract, subject, of course, to final ratification.

Following are the contract and general conditions as amended by the meeting:—

THE STANDARD FORM OF AGREEMENT APPROVED BY THE PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.

This form to be used only with the Standard General Conditions of the Contract.

This Agreement made this.....day of.....in the year Nineteen hundred and.....by and between.....(hereinafter called the Architect) and.....(hereinafter called the Contractor) and.....party of the second part (hereinafter called the Proprietor).

Witnesseth that the Contractor and the Proprietor for the considerations set forth agree, one with the other, as follows—that is to say:—

Article 1. The Contractor shall execute all the materials and perform all the work shown on the drawings or mentioned in the specifications prepared by.....(hereinafter called the Architect) (hereinafter called the Contractor), which drawings and specifications are identified by the signature of the parties hereto and become hereby a part of this contract.

Article 2. The Contractor shall complete the whole of the work comprehended in this agreement by the time or at times hereinafter stated, to wit:—

.....and in the event of failure to do so shall pay or allow the Proprietor the sum of.....Dollars per day as liquidated damages for each day thereafter that the work remains uncompleted.

Article 3. The Proprietor shall pay the Contractor the amount of the fee for his performance of the work the sum of.....Dollars (\$.....) subject to additions and deductions as provided in the General Conditions of the contract, and such payments shall be made.....on the certificate of the Architect as the work progresses to the value of.....per cent. of the work done and materials is ordered in the building as estimated by the Architect.

The final payment shall be made within.....after the completion of the work and the acceptance by the Architect.

Article 4. The said parties for themselves, their executors, administrators, and assigns do hereby agree to the full performance of the covenants herein contained.

In Witness Whereof the parties to these presents have signed the same in their hands and seals the day and date first above written.

In presence of.....

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5. The Contractor shall provide everything for the proper protection of his work and of the adjoining properties, provide for the necessary insurance, and shall hold the Proprietor free from any loss, either by accident or by damage to person or property, and shall be responsible for the safety of his workmen under his control against injury or accident.

6. The Contractor shall do all necessary cutting and repairing of his own work for the accommodation of the Proprietor.

7. The Contractor shall remove all rubbish or materials not required, and at the completion of the work shall leave the whole of the premises clean and in perfect condition. In the event of separate contractors being employed and a dispute arising, the Contractor shall remove all rubbish and charge the cost of same to contractors as decided by the architect.

8. The Proprietor shall maintain fire insurance for the amount paid by him to the Contractor, and the Contractor shall insure and hold the Proprietor free from any loss by fire on the balance of the work not paid for by the Contractor.

9. The Contractor shall give his work his personal supervision, and shall provide a competent foreman for each trade on the works at all times.

10. The Proprietor shall have the power to order the removal, after 24 hours' notice, of any workman considered to be incompetent; and should the Contractor fail to supply the Contractor with properly skilled workmen, or materials of the proper quality, or fail to prosecute the work with due speed, the Proprietor shall be at liberty, after 48 hours' written notice to the Contractor, to provide any such labour or materials, and to deduct the cost thereof from the contract sum, or shall be at liberty to terminate the employment of the Contractor and to take possession and complete the work without the Contractor, and the Contractor's discontinuance of the employment of any Contractor he shall not be entitled to receive any further payment until the work shall be finished, at which time any amount due to the Contractor shall be paid. The unpaid balance shall not be sufficient to complete the works, then the Contractor shall pay to the Proprietor the cost of such and such materials.

11. The Contractor shall at all times provide safe and proper facilities for the inspection of the works, and shall remove within 24 hours all materials condemned by the Architect.

12. The drawings and specifications furnished, being instruments of service, are the property of the Architect, and shall be returned to him on the completion of the works.

13. Figured dimensions shall be followed in preference to scale and dimensions, and large-scale drawings in preference to smaller.

14. Should the Contractor be delayed in the prosecution of the work by the act or default of the Proprietor, or by any accident, or by any fire, or by trade, or by any person employed by the Proprietor, then the time fixed for the completion of the works shall be extended for a period equivalent to the time lost; but no such allowance shall be made unless written notice is presented to the Architect within 15 hours after the commencement of the cause of such delay.

15. No variations, omissions, or additions made upon the order of the Proprietor shall be deemed to be a variation of the contract, and the completion of this contract, and all additions or deductions shall be made only upon the written order of the Proprietor; and if any additional time shall be required, such notification shall be given at the same time.

16. No certificate given, nor payment made, under any contract, shall be a bar to the Contractor's premises by the Proprietor, shall be construed as an acceptance of defective work or of improper material, or as acquiescing in any negligence or omission.

17. If at any time there shall be evidence of any lien or claims for which, if established, the Proprietor might become liable, and which is chargeable to the Contractor, the Contractor shall have the right to retain out of any payment due a sufficient amount to completely indemnify himself against such lien or claim.

18. Should the Contractor be liable to any such lien or claim after all payments are made, the Contractor shall refund to the Proprietor all moneys that the latter may be entitled to pay in discharge of such lien or claim, and the Contractor shall be liable to the Contractor's default.

19. In the event of a dispute between the Proprietor and the Contractor, such dispute shall be submitted to arbitration. The arbitrator shall be one person if approved in writing by both parties; otherwise he shall choose one arbitrator, and these two shall select a third. In the event of failure to agree upon the third arbitrator, he shall be appointed by a Judge of the Superior Court in the district in which the said work is performed. The decision of the arbitrator or arbitrators to be final, and the cost and expenses of the arbitration to be apportioned as he or they may determine.

MOSAIC ART.

Chevalier Professor C. Formili, of London, who has executed the encaustic paintings at St. Anne's Cathedral, Leeds, gave a lecture at St. Anne's Club, Londonderry, on "The Mosaic in the Christian Art."

Every one, said the lecturer, can be said with accuracy to be the originator of mosaic, but we cannot greatly deviate from the truth if we attribute its birth to some century before Caesar's time, and the place of its

perfection to Greece. The brilliancy of its colour, the intricacy of the pattern, the monumental aspect of the style, admit of no doubt as to its Oriental origin. If Athens taught that art to Rome, Rome taught it to the world, because wherever Rome planted its eagle there mosaic is to be found. If this noble art died out of Rome as a Pagan art, its resurrection there was Christian, bringing with it all the exuberance of colour and the fantastic richness of the East. No doubt one of the greatest of all promoters in the new Christian style was Constantine the Great, who made Byzantium his royal residence, calling it Constantinople. A great many palaces and churches were built during his reign, but the art of mosaic reached the highest point only during the reign of the Emperor Justinian, about 537, when St. Sophia was built by his orders.

It is therefore to the East that we owe more especially the art of mosaic and that of painting; and to Italy the honour of being for centuries the faithful custodian of that inheritance, adding to it as she did the national artistic traditions of the past. The Byzantine mosaicists, however, were not so fond of marble workers; they pointed with coloured stones instead of with brushes and colours. The mosaic panels in San Vitale of Ravenna, and the angels of the dome of the apse of Galla Placidia, also in Ravenna, as well as the long friezes in Santa Apollonia, are sufficient to prove the assertion.

That superb scheme of colour of Galla Placidia, the Lombard king recognised as such by the great master, Raphael, after his visit to Ravenna he adopted the same scheme for his Loggia in the Vatican. Once this great colour fashion had started nothing could prove it, although many attempts were made to return to the simplicity and coldness of colour of the Primitive Latin Church. Without the artistic invasion of colour from the East the world would never have seen the glorious St. Mark of Venice, the immortal Ravenna, the basilicas of the Eternal City, nor the gems of Westminster. Besides the importation of the new Christian art another great factor forced the Italians to abandon the old Roman art, and this was the barbarous invasion of the Goths and others, when they cut the old statues to pieces to pave the roads or to build walls of defence; and with the disappearance of the monuments and the false gods, disappeared the art of their fathers, leaving Rome a hideous heap of ruins—a camp of desolation.

But Rome was destined to have another artistic resurrection, and soon became the centre of the Byzantine school of Italy. She absorbed with fanatical joy the religious art of the East, and in that art soon became greater than her teacher.

The lecturer then described the art of the Cosmati or marble-workers. They were not only architects of great repute, colourists as great as Titians, but they were marble-carvers such as the world had never seen before. A notable example of their work in England is the tomb of Edward the Confessor at Westminster, and another important work, although much restored, is a pavement in Canterbury Cathedral. A number of slides of famous examples of the mosaic and Cosmati work were shown by the lecturer, who concluded with a description of the process by which the encaustic paintings for the Cathedral have been produced.

A curious fashion, which is said to be spreading, was lately introduced into a cemetery in Ohio, namely, carving on a grave-stone an enlarged facsimile of the signature of the deceased.

The researchers of Mr. Charles Walsh, F.S.A., at the Record Office have brought to light a book of ordinances of the Carpenters' Company. The "boken," as it is called, is dated 1333, though the fraternity was not formally incorporated until 1345, and the ordinance shows a very complete state of organisation. Work had to be given in preference to members of the guild, sickness and incapacity from accident were assisted from the "common box" and if the common box was not sufficient the brethren were assisted to make good the deficiency.

CURRENTE CALAMO.

We hardly wonder that Professor Reginald Blomfield "felt rather more fogged at the end of Monday evening's discussion at the Institute than he was at the beginning." We feel much the same after reading the debate, and by the apparent ignorance displayed by some of the speakers of the main principles which we endeavoured to set out in our article published on Jan. 5 last. Perhaps, next week we may try once more to make plain what we endeavoured to point out then, namely—taking stock of the recent judgments of the Court of Appeal—what the actual legal position of the architect is, and how only he can act up to it. If even then he finds himself involved in litigation, his risks are really not much more special than those of most of us. If he thinks to avoid them by any other means than mutual co-operation for advice and defence, we fear he will not succeed.

However else readers may agree or disagree with Mr. R. M. Kearns's conclusions in his paper at the Surveyors' Institution on Monday night, which we give elsewhere, no one will question his assertion that the cost of labour in connection with maintenance frequently becomes abnormal owing to a "penny wise, pound foolish" policy in building, especially in the case of cheap houses put up for speedy sale. One has only to perambulate the nearer suburbs, with their long rows of empty houses vainly offered to tenants and purchasers at rents and prices which fail to tempt any but the unwary, who have not yet experienced the formidable yearly addition to the rent—or deduction therefrom in the case of the owner—which "repairs" stands for. What is to become of this derelict property? Unlike that in the still nearer suburbs of forty years ago, very little of it is capable of conversion into shops. Much of it will, literally, tumble down ere many years pass. In many a street the ominous settlements due to last summer's high temperature are visibly dangerous. Other things, doubtless, are partly to blame; but, in the majority of cases, cheap labour must be held mainly responsible, and yet no one can shut his eyes to the fact that the same short-sighted policy is still rampant, even in cases where much is talked about "ideal homes," and better construction.

We hear so much about "Ideal Homes" nowadays, though nobody seems to show as much that is novel in what they offer as such, and even in what is attempted it seems to be ignored that the rentals are far above the means of the majority of the clerks and better-class artisans who cannot afford more than half a house, and so spend most of their lives in a dwelling which, built in the ordinary way, usually combines the maximum of daily hardship and the minimum of comfort or decency. Why is it, we wonder, that the small-house builder does not often provide four family villas of the sort they build in the United States, and meet this want? We have asked Dr. Audsley to give us a set of plans and a description, which we shall probably publish next week, and we hope they will set some builders thinking profitably. Especially we should like to see two features adopted, which will be noted. Neither is vital to the scheme, but each is so marked an improvement on our own

methods that it is extraordinary we still go on in the old fashion.

In Paris henceforth no new work is to be given to an architect who has attained man's allotted age. Should such an architect have a building in hand when his seventieth birthday falls, he may be allowed to finish it, but that must be his last. The reason for this is said to be that serious errors have been made in various edifices owing to the declining faculties, physical and mental, of aged architects. "It would be interesting," thinks the *Manchester Guardian*, "to find out how such an embargo would work out in London. Mr. Norman Shaw," remarks our contemporary, "for instance, was over seventy when he designed the Piccadilly Hotel, which—whatever its defects as a building for shops—is admittedly one of the most virile and thoroughly considered edifices of our age. If proof that his physical powers were still unflagging be needed, there is the fact that he continued to play a good game at lawn tennis until a few years ago." As Mr. Norman Shaw will be eighty-one on the 7th of next month, he is still six years the junior of that hale and vigorous lawyer, Lord Halsbury, who, doubtless, is quite able and ready to take the Woolsack again when the Tories return to power. Let us hope, when the "architectural embargo" at seventy comes along in London, somebody will penion off the veterans, and give them a chance of living as long as the judges!

The proprietors of the Manchester Royal Exchange, at a special general meeting on Monday, passed a resolution authorising the directors to proceed with the promotion in Parliament of the company's Bill as altered so as to provide for the larger scheme of extension to St. Ann-street. This scheme is estimated to cost a million pounds. It will enable 3,200 yards to be added to the floor-space of the Exchange, making it by far the largest in the world and up to date in every respect. We trust there is no real ground for the fears evidently entertained that "such restrictions may be imposed upon the company as would preclude the shareholders from adopting a broad, comprehensive policy, or, alternatively, that the company may not be required to provide a building worthy of the most important commercial Exchange in the world." Such fears, anyhow, are voiced by a correspondent of the *Manchester Guardian* in its issue of Tuesday last.

He points out that it is agreed between the corporation and the company that the portico in Cross-street is, in any case, to be demolished, and with it will disappear the principal architectural feature of the existing building. The whole area from and including Bank-street to St. Ann-street, which contains some of the best shops, is to be acquired by the company. It is a proved necessity that all the floor-space for members must be upon the one level. The members' floor of the present building only permits of shops 12ft. from the pavement, so that any extension of the existing building upon the same floor-level would necessitate the replacing of the present first-class shops in St. Ann's square and Cross-street by such shops as those which exist under the present Exchange. In any extension of the present building heavy columns—in addition to the existing pillars—would separate the present floor from the new portion, and the result, in

effect, would be two rooms in place of one. Every commercial architect, the correspondent quoted avers, will agree that it would be a mistake to add an identical building to the one existing, which is not designed to obtain good revenue results from the letting of offices, etc. Any addition to the existing building must, therefore, he contends, be only a patch, and cannot be in line in St. Ann's-square with the existing building in Exchange-street.

A sufficient additional revenue to warrant an entirely new and imposing building could, so it is alleged, be obtained if in a new building the gallery were specially constructed to provide—by means of a series of show-cases—a permanent exhibition of the products, manufactures, and imports of Greater Manchester. Although this gallery need not be directly accessible to the Exchange floor, but approached by separate entrances, it would further serve the useful purpose of enabling manufacturers attending 'Change to show their new products and patterns, changing their exhibits as often as they desire. The risk, the correspondent—Mr. Marshall Stevens, of Trafford Hall, Manchester—admits, may be one that the shareholders would prefer to insure against. If this should prove to be the case, he is prepared to provide an association of good tenants to lease such a gallery as he suggests at a rental of £10,000 per annum. £10,000 per annum is a sufficient sum to provide interest at 4 or 5 per cent. upon the cost of demolishing the existing Exchange building and re-erecting upon its foundations that portion of the entirely new building.

An exhibition of works by Alphonse Legros which was opened in the Water-Colour Gallery of the Nottingham Castle Museum on Tuesday, should prove of more than local interest. Legros, who died last year, spent much of his English life in teaching—first in the class of etching at South Kensington, and afterwards as assistant and successor to Sir Edward Poynter at the Slade School. Though essentially a figure painter, he also did landscapes, portraits in bronze and sculpture, and it may be remembered that in 1897 he was commissioned by the Duke of Portland to design the fountains for Welbeck Abbey. The original studies for these are shown, and it is interesting to compare them with the plaster models of the finished work in the permanent collection at the Castle. Of the etchings, the drawings of heads reveal, perhaps, the artist's best work. Studies from life of Huxley, Tennison, Hiram S. Maxim, and others show draughtsmanship of high quality. There is also a collection of portrait drawings of his own family, full of life and expression, and many figure pieces and landscapes. "The Salmon Fisher" (No. 11) is a good example of his etchings, while there is an interesting allegorical series, entitled "The Triumph of Death." Legros's painting is best represented by "Femmes en Prière" 156; a group of females at a shrine. There is an interesting portrait of Legros himself by Mr. C. Shannon, A.R.A., and the bronze medallions should not be overlooked. The works have been lent by the family of the artist, through the Fine Art Society, and will remain open for about a month. An exhibition of some of the prize drawings (1912) of the Royal Institute of British Architects was also opened at the Castle the same day, the selections being exhibited in the Long Gallery.

ARCHITECTS' BENEVOLENT SOCIETY.

There was only a moderate attendance of subscribers and donors of the Architects' Benevolent Society at an annual general meeting held at Conduit-street on April 11. Sir Ernest George, A.R.A., who presided, in moving the adoption of the annual report, announced that the late Mr. T. M. Rickman had left the Society a legacy of £200. The report was approved as follows:—

In submitting their sixty-second annual report, the council regret that they have again to record a diminution in the amount of the society's subscriptions. The difference is small as compared with last year; but it is significant, in view of the fact that a special letter of appeal was issued by the president in October to over five thousand architects practising in the United Kingdom. The result of the appeal, although scarcely realising anticipations, increased by new or additional subscriptions the total amount received by £41 18s. 6d., while the sum of £124 8s. 6d. was added to the society's capital from donations received in response to the appeal. The council feel that the number of contributors on the society's books (the total number of subscribers is 512) is inadequately representative of so large a profession, and are also assured that the result of advertising, while extending knowledge of the Society, leads to an insufficient return for the expense incurred. It is felt, therefore, that the subscription list must mainly rely for its support upon the efforts of individual members and upon the corporate action of the Metropolitan and provincial architectural societies. In this connection the thanks of the society are due to Mr. Watson Fothergill, the local honorary secretary of the Nottingham Society of Architects, who secured numerous fresh contributions. During the year the sum of £1,031 was distributed in relief, £245 being paid to pensioners, while £785 was disbursed in grants among seventy-four applicants. A pension having become vacant, various applications were considered, and the annuity was finally granted to the widow of an architect. The total income received in subscriptions was £707 5s. 6d. (as compared with £716 14s. received in 1910), while the amount received in donations was £296 14s. (as compared with £109 15s. received in 1910), including Professor Atchison's bequest of £90. Donations were also received as follows:—Sir Ernest George, £20 and £4; Mr. Edgar Wood, £21; Mr. Edward B. P'Anson, £15 15s.; Mr. Arthur Ashbridge, £10 10s.; Mr. Thomas Dimwiddy, £10 10s.; Mr. Archibald M. Dunn, £10; Mr. John Belcher, £5 5s.; Mr. John Borrowman, £5 5s.; Mr. F. W. Foster, £5 5s.; Mr. Banister Fletcher, £5 5s.; Mr. W. Hilton Nash, £5 5s.; as well as various smaller sums. With the amount carried forward from last account, together with the donations received during the year, the council were enabled to increase the society's investments by the purchase of £500 Queensland 3 per Cent. Inscribed Stock at a cost of £324 18s. 6d. At the beginning of the present year the family of the late Mr. John T. Christopher purchased, through Mr. Freville Christopher, £105 New South Wales 3½ per Cent. Inscribed Stock, in memory of their father, who was himself a liberal benefactor of the society. It is with great regret that the council have to record the death of Mr. William Glover and Mr. T. M. Rickman, the two vice-presidents of the society. Mr. Rickman had been a subscriber since 1872; he served on the council on many occasions, and always took an unflinching interest in its work. The association of Mr. Glover was more recent; but since he came to live in the South of England he took an active part in the progress of the society, generously contributing himself and influencing the contributions of others, greatly to the advantage of both income and capital. The following, being the five senior members, retire by rotation from the council:—Mr. Charles Blomfield, Mr. John Borrowman, Mr. C. R. Baker, King, Sir Charles Nicholson, and Mr. G. E. Bond. To fill the vacancies caused by these retire-

ments, the council have the pleasure to nominate Mr. Henry Lovegrove, Mr. E. Arden Maity, Mr. Rowland Plumble, Mr. William Woodward, and the President of the Society of Architects. The council have the pleasure to nominate Mr. Henry L. Florence for election as vice-president. The thanks of the society are due to the Royal Institute of British Architects for office accommodation, and to the staff of the Institute for assistance always cordially rendered in any matter connected with the society.

After the adoption of the report, the council were elected as follows:—President, the President of the R.I.B.A.; Vice-president, Mr. Henry L. Florence; members of council, Sir A. Brunwell Thomas, Mr. Walter Cave, Mr. F. W. Hunt, Mr. Reginald St. A. Roumieu, Mr. Lewis Solomon, Mr. T. E. Colclutt, Mr. George Hubbard, Mr. E. B. P'Anson, Mr. A. Saxon Snell, Mr. W. L. Spiers, Mr. Henry Lovegrove, Mr. E. Arden Maity, Mr. Rowland Plumble, Mr. William Woodward, and the President of the Society of Architects.

Mr. W. Hilton Nash was elected hon. treasurer, and Mr. Percival Curry hon. secretary. A vote of sympathy was passed to Mr. Curry, who was absent on account of illness. Mr. Henry Lovegrove and Mr. C. H. Brodie were thanked for their services as auditors. Votes of thanks to the chairman for presiding, and to Mr. Dircks for his secretarial work in connection with the society, brought the proceedings to a close.

THE REMODELLING AND EQUIPMENT OF MADRAS HARBOUR.

By SIR FRANCIS J. E. SPRING, K.C.I.E.,
M. Inst. C.E.

The author, who holds the position of Chairman and Chief Engineer to the Madras Port Trust, shows that, on a sandy coast totally devoid of all natural advantages, an artificial harbour, with an area of 200 acres, had been constructed, originally at a cost of nearly one million sterling, and yet, when made, and up to seven years ago, it was found to be of comparatively little use for the easy, cheap, and expeditious transit of cargo between ships' holds and carriers' carts or railway wagons. By the further expenditure of £300,000 on the remodelling of the harbour and the formation of a basin for small craft, conditions have been secured which enable cargo to be handled between ship and shore in all weathers. This remodelling consisted in closing the east entrance, which allowed the swell to roll in nearly all the year round, and forming a new north-east entrance, and shelter of a projecting breakwater. Finally, at an additional cost of £300,000, equipment has been provided in the shape of works on shore, such as piers and wharves for lighters, a quay for ships, an ample supply of cranes, a large area of shedding, together with railways, roads, and everything else required for the speedy, safe, and convenient passage of goods through the Port Trust's premises. The direct result of the construction of this new basin referred to has been to bring into existence a fine fleet of privately owned lighters, of 40 to 60 tons capacity. The effect of this extra two-thirds of a million expenditure over and above the original million is that vessels visiting the port—other than what may be called the passenger ferry boats trading with Borneo and the Malay States—are passing in and out of the harbour in about half the time it used to take years ago, whereas its capacity has, virtually, been considerably enlarged. After a brief summary of the history leading up to recent developments, the author deals with the matters of engineering interest met with in connection first with the remodelling of the harbour and next with its equipment. He also touches on the important question of sand movement. The question of wind-action is disdissed by means of a factor affecting the outside working of vessels moored in the harbour, and it is claimed to

have been proved that, as the result of the remodelling, it will be safe to build quays at which large vessels may lie and work their cargo. As such quays seem to be also needed in the harbour, a scheme has been prepared for a length of 3,000 ft. of masonry ship-quay, of which about one-fourth is now well in hand. The rates at which important parts of the work have been executed are given, together with an explanation of how funds were provided. The average incidence of the dues levied by the Port Trust is stated, whether on goods per ton or on vessels per ton registered dues, which it has not, so far, been found necessary to enhance, as the result of the heavy expenditure that has lately been incurred. Finally, the manner and conditions of handling cargo are described, and the extent of the Trust's intervention between steamers and their customers, together with the reasons for such intervention, is dealt with.

THE ALTERATION OF THE FORM OF MADRAS HARBOUR.

By H. H. G. MITCHELL, M. Inst. C.E.

The second paper deals with the method of carrying out the actual work of alterations to the harbour. The first consideration was the weather, and special precautions had to be taken to secure the work during the cyclonic season. By taking such precautions it was possible to proceed continuously with the setting of the sloping blockwork. The materials used in, and the method of making the concrete blocks are described. In the erection of the north sheltering arm the blocks were dealt with by means of a titan crane capable of lifting the 33-ton blocks at a radius of 62 ft. The blockwork is in the form of sloping shelves on a rubble bed, with pell-mell wave breaker blocks on the seaward side. The opening of the new entrance presented great difficulties, as not only had the existing breakwater to be removed, but also the remains of a former breakwater. By means of the titan crane and a floating barge fitted with a powerful derrick, however, both the pell-mell blocks and the sloping blocks were effectively removed. The rubble base was dredged by means of a bucket dredger, precautions being taken to strengthen the valves, shoots, and hoppers against the pounding of the large stones brought up. On the opening of the new entrance the old one had to be closed. This was satisfactorily completed in September, 1910. The author also describes the construction of the slipway which was made capable of taking vessels up to 500 tons dead weight, and the system of labour are dealt with, and details of the cost of the work are given in an appendix.

The Rev. Jacob Primmer, Dunfermline, states that he has received information from an influential and reliable source that, owing to the action of the Kirkcaldy Council, the City of Edinburgh, and the Church of Scotland, the land in support of the retention of the King's memorial marble altar in Crathie Parish Church, the parish church for Balmoral, that a will bequeathing £200,000 to the Church of Scotland, has been destroyed, and the money diverted to a different object.

Sympathy is felt at Keighley for the young widow and the relatives of Mr. Harry Shackleton, who has passed away at the age of twenty-eight years at Liverpool, after an operation for appendicitis. A student at the Keighley Trade and Grammar School, and a member of the Technical Institute, after holding appointments as architect at Manchester and Bolton, he became an assistant architect under the Board of Works, with special oversight of the Labour Exchange in Lancashire.

The Chapel of Ease, St. Catherine's Parish, Donere-avenue, S.C.R., Dublin, which has been in an unfinished state for the last fifteen years, is now to be completed by the erection of northern transept, chancel, vestry, tower, and porch. The architect, Mr. R. J. Stirling, of 45, Penbrooke-road, Dublin, has prepared the plans. They are to be carried out by Messrs. J. and P. Good, contractors, 55, Great Brunswick-street. The amount of the contract is £22,295. The facing of the building will be in red brick, with granite dressings.

Abstracts of two papers intended to be read at the ordinary meeting of the Institution of Civil Engineers, on Tuesday, April 16, 1912.

Our Illustrations.

CHURCH OF THE INSTITUT SAINT MICHEL, BRUSSELS.

This very large new college, which has recently been erected in the Boulevard St. Michel at Brussels, is thoroughly up to date in its appointments, and provides for one thousand students, the greater proportion of the pupils being, however, non-resident. The Institution is intimately associated with the Société des Bollandistes, by whose aid the building scheme has been completed. A considerable library belongs to the college, its contents being chosen with the view to the educational scheme for which the college was founded. The buildings surround two capacious quadrangles, the central position of the whole project being occupied by the church, the rear end of which is attached to the flanking wings of the main block extending to the right and left. From this same principal part of the colleges a range of buildings are set out at right angles extending forwards to the main block, the fixed line of frontage level with the church portals, these being set back a few feet from the boundary-fence along the Boulevard frontage line. The left-hand wing is continued to a like distance from the rear line of the main block, while immediately behind the central position of the church another wing is built, including a large gymnasium. The grand dining-hall of the college, on the ground floor level, is contained within an extension of the chief block, in a line with it, and extending beyond considerably to the left. M. J. J. Prémont is the architect, and M. J. Van Deuren is the contractor. The church, of which we give two interiors and an exterior view, consists of a nave of four bays, and extends under the crossing which opens into quasi-transepts, wherein are set side-chapels in a line with the two aisles, whose cross-galleries beyond are provided. The high altar occupies an apse at the end of the choir, and there are two flanking chapels, having also apsidal terminations. At the entrance end of the nave there is another apse of large size, which forms an important and unusual feature in the plan, and gives an imposing effect externally. The view accompanying these notes illustrates this appearance as seen from the Boulevard Militaire, from whence the photograph was taken. Considerable ingenuity has been displayed by the architect in contriving this apsidal scheme, set as it is between two capacious porches, with two adjacent turrets, adding much to the interest of the composition, while the twin towers on either hand of the nave gable likewise add to and diversify the sky-line, which furnishes a contrast to the severity of treatment adopted by the façades of the surrounding college premises. This monastic church is thus essentially distinguished by being made an integral part of the whole institution, instead of being allowed to assume the character of an isolated building. The style chosen has been described as an adaptation of Romanesque work, without attempting exactitude in regard to precedents, or an adherence to the Basilican model of plan, and M. Prémont has not copied or emulated the detail of Lombardic or Anglo-Norman architecture, his chief aim, we understand, having been to erect a modern church in a contemporary way, well adapted to its purpose, being solid in construction and picturesque in its idea, also embodying good proportions as well as boldness in its parts, loftiness throughout being considered essential, as expressed conspicuously by the towers. We are indebted to the Société Co-operative d'Architecture for the accompanying photographs, which have appeared in the official journal of the Société Centrale d'Architecture de Belgique, called "L'Emulation," and so well known by English architects for its excellent illustrations and technical information. The plan as it appears, with the exterior perspective view of the church, shows its general arrangement and shape of the building, but we were unable to find room for the reproduction

tion of the entire plan of the college, which is grouped round this church or college chapel as already described. To the rear of the apsidal choir, the plan here given shows how the adjacent premises are connected with the church.

THE ASTOR HOUSE HOTEL, SHANGHAI.

We give herewith the exterior view and three interiors of the newly-built extension of the Astor House Hotel, Shanghai, recently opened. The building is Renaissance in style, and of red brick and artificial stone. All interior beams are of reinforced concrete. On the Whangpoo-road frontage the building has five stories, in addition to the attics, whilst on the Astor-road side there are four stories. The lounge-hall is 70ft. in length and 60ft. in breadth, and is surrounded with massive pillars of artificial marble. At the corner of the Whangpoo-road and Broadway the public bar and buffet (50ft. by 51ft.) is situated, while at the east end of the building, on the ground floor, are the hotel office and manager's private office, with the secretary's office in the mezzanine over the bar. On the Astor-road frontage, the basement contains an extensive steam heating apparatus, besides a number of useful store-rooms. There is also a ladies' entrance to the hotel on the Astor-road side. The first floor, on the Whangpoo-road side, contains the dining-hall, with the necessary service-rooms, and on the Astor-road side the banquetting-hall, with reception-room for same, and a number of private dining-rooms. The dining hall is 154ft. in length, and has a width of some 49ft., providing accommodation for between 500 and 600 people. The banquetting hall is 91ft. long and 40ft. wide, and is adjourned by a comfortable little reception-room, 40ft. by 20ft. The private dining-rooms, of which there are half a dozen, are spacious in themselves; but they can be enlarged to double their present size by throwing back sliding doors which open nearly from a partition between the two. The upper part of the dining-hall and the dining-gallery are situated on the second floor, and here is a large south verandah, from which a splendid view of the river and a good part of the settlement is obtainable. On this floor there are also service-rooms for the dining-gallery, fitted up with all necessities, whilst on the eastern side of the building there are ten bedrooms, with bathrooms attached. The dining floor is given over to billiard and sitting-rooms, of which there are twenty-four, each with bathroom adjoining. On the fourth floor are fourteen bed- and sitting-rooms. The staff rooms are situated on the third and fourth floors. The attic story is devoted to kitchen, sculleries, storerooms, etc. The passenger lifts serve five levels, and are Messrs. Waygood and Co.'s latest design. These elevators will lift heavy, at the rate of a minute, but they are fitted with the unpleasantness of violent starting and stopping, they are fitted with a second speed. Beneath each cage they are fitted with Waygood's special passenger safety-gear, which consist of four grooved cams, so that undue stretching or breakage of one of the ropes will cause the cams to grip the timber backing behind the steel guides and prevent further descent. The elevators are further equipped with Waygood's patent slack cable switch, arranged to cut off the electric current and stop the machine should either the cage or balance-weight meet with obstruction in either direction. The architects of the building are Messrs. Davies and Brooke, 10, The Bund, Shanghai.

RIBA PUGIN TRAVELLING STUDENTSHIP DRAWINGS, 1911.

BY MR. J. B. F. COWPER, ASHPITEL PRIZEMAN. The screen behind the altar in the Minster Church of St. John at Beverley is of the same date as the Percy tomb (about 1350), and the carving of the caps and bosses is very similar. The stone is Tadcaster of a lovely mellow colour. The arries of the mouldings and the carvings are still perfectly sharp, and are extremely delicate, the

bosses being deeply undercut. The shafts are in black and chocolate-coloured marble. The vaulting is done in large slabs. The north aisle of the choir of Pershore Abbey is an unusual type of bay design, in which the triforium is lost in the lengthening of the clerestory. The carving of the bosses, the slender delicacy of the ribs and shafts, and the graceful proportion of the whole give a great effect of loftiness. The tower of St. Cuthbert's, Wells, is a very good example of that type of tower, containing long belfry windows, so common in the West Country. These long windows are to be noticed in the cathedral church of Wells, where the arrangement of the buttresses, with their square finials, gives a fine air of sturdy strength to the tower, which is just sufficiently relieved by the warm colouring of the stone. The Tribunal, Glastonbury, originally built in connection with the Abbey, is in a very bad state of repair, the carving being hardly discernible. The arrangement of cutting back the wall to gain light in the oriel is curious, and the general proportion of window opening to wall-surface is notable. The lantern-tower of Howder, St. Peter's, is perpendicular of the best period up to the belfry level, the top story being commonplace and debased. The mouldings of the long windows are finely done, and it is unfortunate that the belfry's floor has been inserted, blocking up all light to the crossing. St. Monance, Fifehire, N.B., stands on a cliff overlooking the Firth of Forth. The sturdy spire and tower are built over the crossing. The nave has never been built. The tracery in the chancel windows has been destroyed and restored—an examination of the mouldings shows how badly.

TEMPLE OF THE SUN, ROYAL GARDENS, KEW.

(See description and further sketches on pages 548-9.)

* * * We regret that pressure on our page compels us to postpone the report on the discussion at the Society of Architects on Mr. McArthur Butler's suggestions for a Code of Ethics, the meeting of the Architectural Association on Monday last, and one or two other matters.

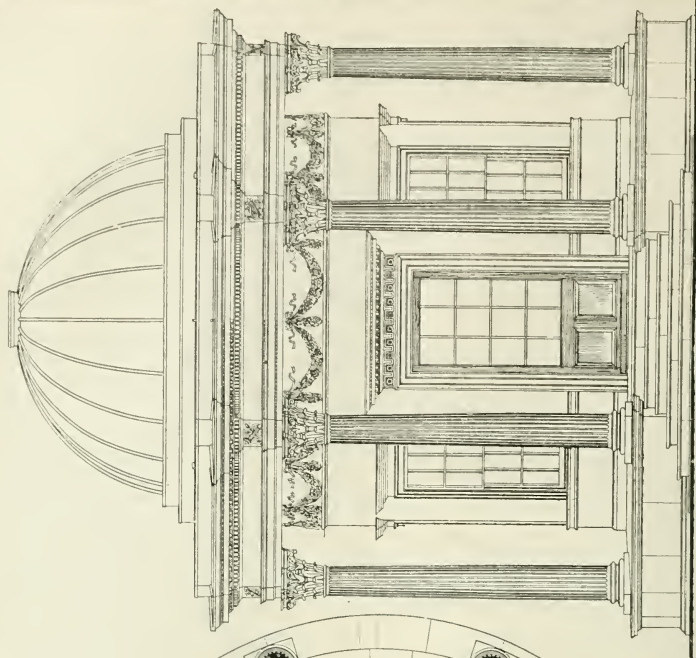
STATUES, MEMORIALS, &c.

EXETER.—The chapel of the Royal Devon and Exeter Hospital has just received a seemly and interesting addition in the shape of a handsome tablet erected to the memory of Mrs. Johnson, an old nurse, who was highly esteemed during the nearly thirty years she remained there a valued member of the nursing staff. The cenotaph consists of an effectively-moulded slab of richly-veined and polished Derbyshire alabaster, upon which rests a tablet of pale Castellino marble. It has been fixed upon the decani side of the sacred fane, immediately over the seats occupied during Divine service by the sisters, nurses, and probationers. It is the work of Messrs. Hens and Sons, of Exeter, and is the gift of Mr. Harry Hens himself, who is house visitor to the hospital, and the senior member of committee of management. Mrs. Johnson was elected so long as 37 years ago—i.e., in 1875.

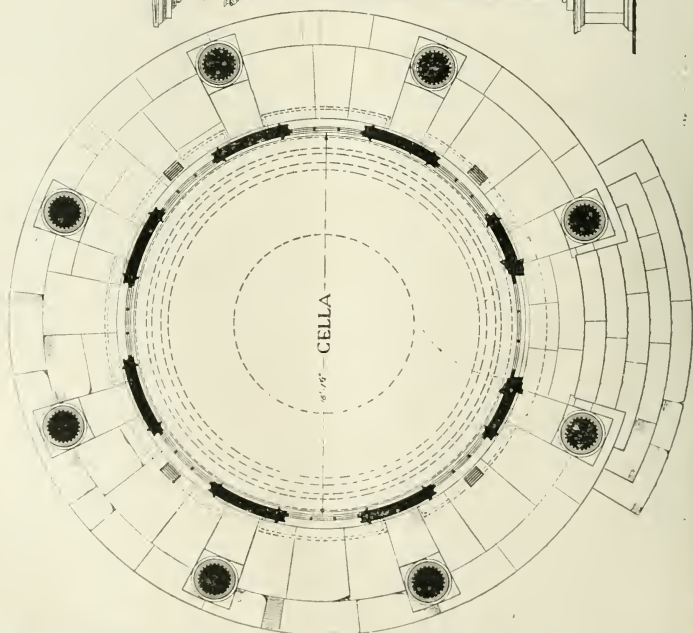
The Newry Urban Council have appointed Mr. Anthony Scott, of Dublin, consulting engineer in connection with the proposed extension and improvements to the town hall.

A new Catholic church was opened at Southport last Sunday. It is designed in the Early Gothic style, and will provide seating accommodation for four hundred and fifty people. The architect is Mr. Alfred Gilbertson, of Liverpool.

A scheme of restoration and renovation is being carried out at the historic parish church of Aisle, Nuneaton, which is prominently noticed for four hundred and fifty people. Next to the church is a moated castle, which was once the home of Lady Jane Grey. On a site on the Shelbourne-road, Dublin, covering an area of over 14,000 superf., new buildings are being erected from the plans and specification of Mr. E. H. B. H. architect, M.R.I.A., 24, Nassau-street, for the Sra. L. Laundry Co., Ltd. Messrs. Bolton and Sons, Rathmines, are the contractors.

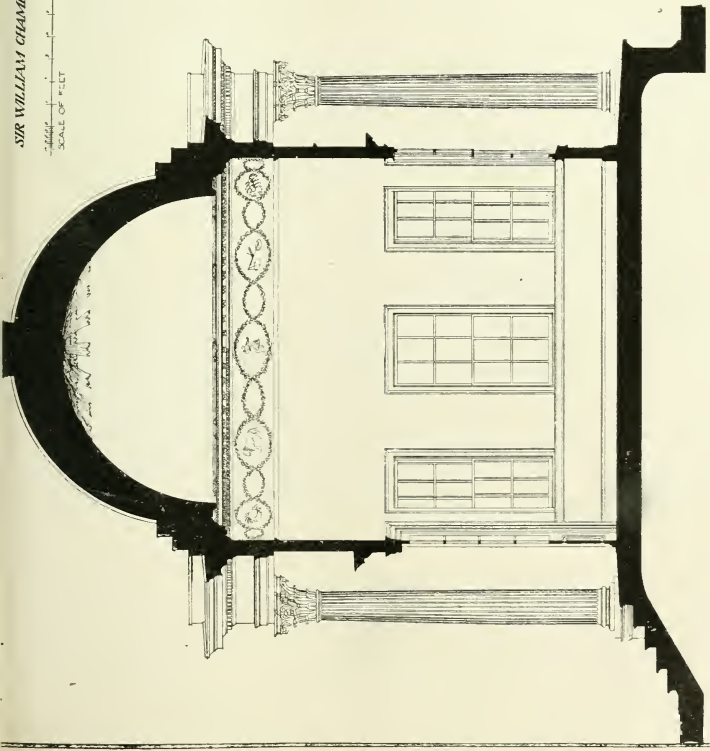


FRONT ELEVATION



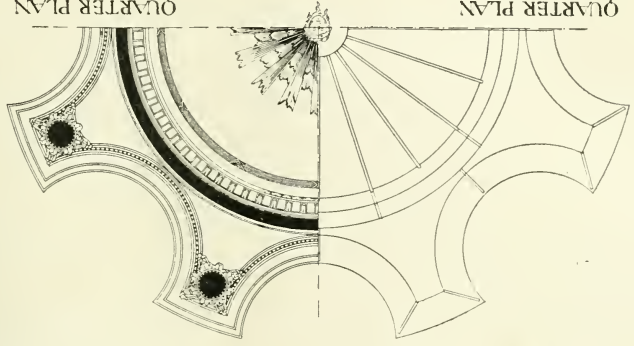
SIR WILLIAM CHAMBERS' ARCHIT

SCALE OF FEET
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SECTION

QUARTER PLAN
LOOKING UP
ABOVE DOME



MEASURED AND DRAWN BY MAURICE S. R. ADAMS, A.R.I.B.A.

THE LAND UNION.

The third annual meeting of the Land Union was held on Tuesday at the Whitehall Rooms, Mr. E. G. Pretymann, M.P., presiding. Mr. S. Hoffnung Goldsmid, in presenting the accounts, said that this year one of the most substantial subscribers to their funds would be the Chancellor of the Exchequer, who had to pay their costs in the test case regarding Form VIII. Mr. C. E. Newton Robinson, in proposing the adoption of the annual report, said that after three years they had brought the Commissioners of the Inland Revenue face to face with the referees under the Finance Act, and they had been able to persuade those gentlemen, who were independent valuers and not lawyers, and did not understand some of the extraordinary complexities of the Act, to come to decisions marked by a sense of justice.

Mr. E. G. Pretymann, M.P., said that the Land Union had a very difficult task for it had to combine advisory and political work. Almost the whole of the time of the Legal Committee was taken up in dealing with the cases of very small holders of land. On the political side they were quite satisfied with the progress made. Thanks to the Land Union, the land taxes were no longer popular. He was not sure that the Government did not find it pay to cover up their tracks by putting fresh mud on to occupy public attention. It was impossible to get correct answers in the House of Commons as to how far the valuation had really gone. The claim was made that one-fifth of the valuations had been made, but these were mostly duplications of such things as rows of identical houses, and the policy of the valuations department was obviously to serve valuations on people not likely to object. Great difficulties were arising over "substituted site value." Then they had had the very amusing cases of "minus valuations." Captain Craig, M.P., owned a villa near Belfast. The agricultural value was brought out at minus £1,000 and the site value as minus £5,000. Any mathematician knew that two minuses made a plus, and therefore a claim was made for undeveloped land duty on £6,000. The claim had not been pressed, but it showed the absurdity to which the valuation had been taken. The cost of the valuation had been enormous, and the yield very small. The defence was that the valuation was being made not for the purposes of collecting the taxes, but to make a Domesday Book for future Chancellors. If that object was going to be attained, the valuation ought to be uniform. But agricultural land was being valued on a wholly different system from undeveloped land. To ascertain what value building land was devoted of all that was the result of human endeavour; but in the case of agricultural land the whole of the improvements still remained in the site value. They were told that it did not matter, because they did not pay taxes on agricultural land. The Government were now claiming to share profits. That was not taxation; it was extortion of money from private owners without the authority of Parliament. Those responsible for this claim ought to be in the dock. What was being taxed was not the increase in the value of the land as Parliament understood, but occasional profits on land, and there was no allowance for losses. The man who bought land, cut it up into blocks, and made a profit on some but losses on others, paid on the profits, but had no allowance for the losses. He had hopes that the land taxes could be removed from the Statute Book before long.

SAPPY OAK.

Sap oak, says the *Master Builder*, has suffered unjustly from abuse, and has been neglected because it has not been properly understood. The sap part of oak has been considered as inferior, and the outside or sappy boards have never been regarded with much favour. All the same, if properly cared for from the time it is cut until it is used, it will often give good results. For certain schemes of finish in cabinetwork it is really

a better body to work on than heart oak. It is the same way in flooring. If one but takes care of the sap and segregates it from the heart stock so as to get it all together for harmony in texture and colour, there is a chance to do just as effective work with sap as with heart. There is no comparison of sap with heart for timbers and exposed work outside where durability is an object under the method of using the timber plan; but with the modern systems of treating wood, the sap part of oak is being made much more useful and durable even for outside work. If sap oak flooring is selected and laid with care, and properly stained before finishing, it will present, but in a higher degree, to furniture and cabinetwork. The only thing necessary is to take care of the sap stock from the time it is cut until it is ready to be used. To have the sap dominating in the particular work in which it enters, and the work carried out right, one can get new appreciation of the possibilities and beauties of sap oak. The sappy part of oak is naturally inclined to rot from the wind, and therefore needs extra care. The manufacture of artificial limbs and crutches has become a considerable source of consumption for several kinds of hardwoods. Red willow of the best grade obtainable is used for this purpose in America. It is bought in round blocks, just as they are cut from the logs, in lengths varying from 16in. to 22in., and in diameter from 5in. to 10in. Air-dried stock is essential of the only kind that can be used, as it has been proven practically impossible to prevent checking along the grain of kiln-dried blocks. Willow blocks are used in what are known as extensions—namely, specially-shaped blocks for equalising the length of deformed limbs. There is also a considerable quantity of various hardwoods used in the manufacture of crutches. Hard maple, rosewood, ebony, hickory, and some of the tropical woods are the principal species utilised. The best grades of stock are used for this purpose, and are taken in lengths varying from 32in. to 60in. The boards are ripped into inch squares, after which they are shaped, rounded, and varnished.

THE EDINBURGH COLLEGE OF ART.

COMPLETION OF THE BUILDINGS.

The second half of the Edinburgh College of Art Lauriston, has now been completed, and the rooms were available for the work of the summer term, which began yesterday.

The Edinburgh College of Art was established in 1908 by the town council of Edinburgh to serve as a central institution for art education in Edinburgh and the South-East of Scotland. It took over and incorporated the work of the Royal Institution School of Art and the art department of the Heriot-Watt College. The foundation stone was laid by the present King and Queen, then Prince and Princess of Wales, July 11, 1907, and since its opening on January 7, 1909, the college has been an unqualified success. The number of students has augmented each year, and now attains the figure of about 880 in all departments—a larger hall attending the classes in the evening.

Designed by Mr. J. Dick, C.B.E., M.S.A., the entire cost of the building, including £19,000 for equipment, will not be far short of £80,000. The imposing facade of the college is hidden to view as it is at present; but the obstructing houses shutting out the view from Lauriston may be removed when funds are available. Erected on the Cattle Market site, the college has a frontage to the south of 360ft., and a depth northwards of 125ft. It is built to the south in two imposing stages; on the north side the slope of the ground admitted of a basement floor being formed, of which ample use has been made. The facade is of Classic design, with a touch of French treatment in the pavilion roofs of the four corner towers. A feature is made of the main entrance, with its group of columns carrying a pediment which in due course will be filled with sculpture. The walls are of red sandstone; the roof covered with soft green slates.

Internally, from the entrance hall the broad, straight corridors run east and west, and off them the classrooms open. The new half of the college is that on the east side. The sculpture hall is 100ft. in length, 60ft. in breadth, and 35ft. in height. It rises through both the floors, and is lighted from the roof. Separating the hall proper from the main corridors along its four sides is, on the ground floor, a massive arcading. There are six arches on the north and south sides, and three on the east and west. On the floor above, instead of the dividing arches, there are sets of grouped Ionic columns, the openings between them being protected by iron balustrades. In the sculpture hall will be set up the best of the antique statuary which formed the collection at the old Mound Gallery, as also a fine collection of new casts of ancient and modern sculpture, for the purchase of which the sum of £2,000 has been earmarked. Adjoining the sculpture hall on the north side is the antique room to which the examples of sculpture required for study can easily be removed.

Stepping from the entrance hall into the corridor on the south side of the new part of the college, on the lower floor, are a new office for the secretary, a new board room, and two large halls devoted to the teaching of architecture. At the extreme east end is a small conservatory, where flowers and plants for painting purposes will be kept; a room for the head of the architectural section, and a third room for architectural students. Along the north corridor are two painting-rooms and the room for the study of the antique. The largest of the architectural halls is 70ft. by 30ft.; the antique room is 55ft. by 30ft. The ceilings are all 18ft. in height, which enables the rooms to be lighted by a series of lofty and spacious windows in the walls.

On the first floor, along the corridor on the south side leading east from the top of the grand staircase, is a museum (40ft. by 30ft.) and three classrooms for design. At the east end there is another small conservatory, a fourth room for design, and a room for the head of the section. Along the north side of the northern corridor are a room for the head of the section of painting, and two life classrooms, with staff room and wardrobe room between them. The first floor ceilings are all 24ft. in height, and some of the rooms have roof as well as side lights.

There is a third small story at the east end of the new part of the building, in which will be housed the Royal Scottish Academy's school of painting, which is now under the joint management of a committee of eight elected in equal parts by the Royal Scottish Academy and the board of management of the College of Art. It consisted of two large classrooms about 40ft. square, with retiring-rooms for the models. The "throne" for the model in these, as in all the other life classrooms in the building, will be warmed by electric heaters. The whole college is heated on a hot-water system with radiators, and artificially lighted by electric light.

In the basement in the new part of the college is a men's common room 40ft. by 25ft., with cloakroom on the opposite side of the corridor, a matron's room and store; a dining hall for masters and students of both sexes, 60ft. by 35ft., with servery, kitchen, and scullery attached. The walls of the dining room are panelled, and in these decorative pictures will be painted by the students. A long tunnel between the retaining-wall and the inner-corridor will in the basement makes an excellent store. £600 has been set apart to build an animal studio at the west end of the building, where living animals may be kept that are being painted.

The town council has voted £1,000 for the laying-out of the ground, now in a very rough state, in front of the college.

The Local Government Board has withheld its consent to a scheme for the erection of fifty artisans' dwellings at Child's Hill, Hendon, on the ground that cottages of a more commodious type could be erected and let from 7s. to 7s. 6d. a week. The Hendon Council has amended the plans accordingly.



Newspaper Illustrations, Ltd., Photo.

THE QUEEN VICTORIA MEMORIAL AT NICE.—M. MAUBERT, Sculptor.

THE QUEEN VICTORIA MEMORIAL AT NICE.

The memorial to Queen Victoria was unveiled last Friday at Cimiez in brilliant weather. Speeches were made by the Mayor of Nice, the British Ambassador (Sir Francis Bertie), and the French Prime Minister (M. Poincaré). Earlier in the day there was a review of British and French sailors and a march past, during which the French battle fleet steamed close in shore, and four aeroplanes circled over the spectators.

M. Poincaré's speech best describes the memorial: "This beautiful monument, which

is the work of M. Maubert, expresses, in the form of a happy symbolism, the feeling which has inspired this memorial celebration; and here is the old Queen as you knew her, gentlemen, from 1896 to 1899. Venerable and motherly, dressed with her wonted simplicity, seated with an unaffected dignity, she slightly bends her face, with a grave and attentive look, towards the girls who, in a harmonious group, symbolise at her feet the towns where she sojourned on the Riviera. Nice, with a fine, free gesture, offers a bunch of flowers to the Queen; Cannes, too, brings a posy, and gently leans with her hand upon graceful Mentone, who in turn presents her

offering of lemons and of a variety of fruits; while Grasse, half kneeling, detaches some flowers from the bouquet that she carries and wreathes with them the Royal Arms. Thus in white marble are shown forth the smiling hospitality which it was the lot of these four towns successively to extend to the old age of the Queen, the heartfelt gratitude which they have ever entertained towards their illustrious visitor, and, at the same time, the tranquil majesty of a woman who wore for sixty-three years the crown, as well as the triumphant charm of the cities which form the glory, and the wealth of this favoured region."

OBITUARY.

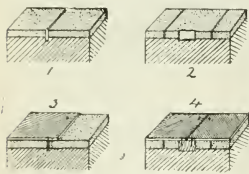
We regret to announce the sudden death, on the 17th inst., of Mr. Robert J. Macbeth, F.R.I.B.A., of Queen's House, Inverness, a Scottish architect of considerable attainments and extensive practice. He was elected a Fellow of the Royal Institute of British Architects in 1906. As we recently announced, he was one of the seven architects selected to submit designs for the Scottish National Memorial to his late Majesty King Edward the Seventh at Holyrood Palace, Edinburgh.

The death occurred on April 16, in Toronto, at the age of 37, of Mr. Charles Beresford Fox, M.A., M.Inst.C.E., after the after-effects of an operation for appendicitis. Mr. Fox was, until his departure for Canada, a partner in the firm of Sir Douglas Fox and Partners. He had travelled round the world, and was then engaged as assistant engineer on the works of the Great Central Railway extension to London. Afterwards he was in charge of the construction of the large bridge across the River Zambezi at the Victoria Falls for the Cape to Cairo Railway.

LAYING LINOLEUM AND OTHER FLOOR COVERINGS ON TILED FLOORS.

In the ordinary method of laying floor-coverings on boarded floors there should be no serious difficulty, iron or brass brads or shoe nails driving readily and wherever needed. With tiled, brick, or cemented floors the case is different, however, as nails will not drive unless they are too large, and there is no adhesive which will hold to both cloth and floor except it seriously disfigures the latter. This suggests some other method of fastening necessary, that about to be described being about as good as any that can be used.

In the first place, holes must be made regularly along the places where the edges of the covering will come when laid, and these holes will depend largely on the character of the



floor, round holes (Fig. 1) being drilled out, while rectangular ones (Fig. 2) will be worked out with a chisel. The size of the holes in tiled work will only be about the thickness of the joint between the tiles, while in brick or cement the width or diameter will be about half an inch. The wooden plugs inserted in the holes should be dry and of only a size to drive firmly, and ash or similar wood should be selected where possible.

In laying linoleum or other coverings, the edges should be cemented as shown in Fig. 3, round plugs being sufficient; but where possible, rectangular plugs should be used where edges meet, as shown in Fig. 4. About 2in. brass shoe-nails are excellent for holding down floor-cloths, but not only do they hold well, they are easily withdrawn, as they do not rust.

Unlevel floors should be smoothed off before any form of floorcloth is laid, or the covering laid over badly, the method of levelling having to be selected to suit the material which the floor is composed of.

Walter J. May.

Dunstable Hall, Staffordshire, which it is said dates back to the thirteenth century, has been sold by the owner, Mr. H. Staveley-Hill, M.P., and the work of demolition is now in practically complete. The old hall was reported to be in need of underground with a church. The old kept, some distance from the hall, will be preserved.

Mr. H. Shelford Radwell, M.Inst.C.E., held a Local Government Board inquiry at Devonport last week, the council having applied for sanction to borrow £49,993 for extensions of buildings and plant at the municipal electricity works, £800 for the provision of public conveniences, and £456 for the purchase of certain lands in order that a road widening scheme may be carried out in Penryn-cross Ward.

COMPETITIONS.

BIRMINGHAM—The Birmingham Baths Committee meeting last Monday decided to recommend to the city council a considerable extension of public bathing facilities. The question of the provision of baths at King's Heath on a site purchased by the King's Norton and Northfield District Council was considered, and the committee decided to advertise, inviting competitive designs. The plans will be submitted to the committee early in the summer, and the council will then be asked to sanction a loan for the erection of the building. The intention is to provide one large swimming-bath for men, a smaller one for women, and a set of private baths for either sex, with the usual accommodation for the attendants. The committee also had before them the question of cottage baths in the city. They authorised the town clerk to purchase a site in Lower Dartmouth-street with a small frontage to Watery-lane, and on this land they propose to erect cottage baths, the accommodation being for twenty-four. The committee are also to consider the extension of the baths in Coventry-street, erected in 1900, and the provision of similar private baths for men at the Victoria-road Baths, Aston.

BOLTON—Mr. Jonathan Simpson, F.R.I.B.A., the assessor in the competition for the Miners' Federation Hall, has awarded the premiums as follows: 1st, Bradshaw, Gass, and Hope, of Bolton; 2nd, Sykes and Evans, of Manchester; 3rd, Thos. E. Smith and Sons, of Bolton. There is to be no public exhibition of the designs.

MIDDLESEX HOSPITAL—The committee of the forthcoming exhibition of designs for mural paintings and for the decoration of schools, etc., announce a competition for the decoration of the vestibule of the Middlesex Hospital. The circular giving particulars may be obtained from the hon. secretaries, Mural Decoration Committee, Crosby Hall, S.W. The plans will provide for four wall spaces, lit from the roof, each measuring 5ft. 8in. high by 10ft. 11in. broad. The architect proposes a dark wooden dado, preferably of teak, and a moulding for the paintings either of the same material, or of some other, at the discretion of the painters, and that outside the moulding should be a plain surface of white or light-coloured plaster. Plans are on view at Crosby Hall, showing the arrangement and lighting. The subjects, it is suggested, should be symbolic, such as "The Good Samaritan," or might be cheerful scenes of convalescence, in the country or by the sea, or scenes of ordinary life at different times of the years. Each competitor is limited to one design, but the occasion is a good one for co-operation between several designers. Mr. Davis offers £100 for the execution of each painting from a design approved by him. In the event of a design being accepted and not approved of by the Middlesex Hospital, the sum of £50 will be given in lieu of the execution of the work.

VANCOUVER, B.C.—The following circular has been issued to architectural societies and individual architects by Mr. Richard T. Perry, hon. secretary-treasurer of the Royal Architectural Institute of Canada: "Members of the British Columbia Society of Architects and other practising architects are requested by the council to refrain from competing for the proposed University Building at Point Grey (Vancouver) until the conditions of competition are revised, for the following reasons: (1) No independent assessor or assessors. (2) First prize merged in commission. (3) No time limit to professional residence and practice. (4) Nothing definite re buildings to be immediately erected. The council have communicated with the Minister of Education on these points, and intending competitors are requested to wait for a satisfactory reply, which will be advertised as soon as received."

A special meeting of the Watlington Council was held last Monday night to consider the question of the town hall site. Nothing was decided, but it was understood that the Bakenham quarry site was favourably entertained.

PROFESSIONAL AND TRADE SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION—Last week the vice-president (Mr. G. Salway Nicol) read a paper on the association's visit to Holland. The great charm of Dutch buildings, he said, is due to the fact that they are such a complete expression of the character and ideals of the people. Their domestic work particularly has much to teach us in the simple and direct way they obtain their effects. For their more important buildings, such as the "Stadhuis" at Middelburg, they generally employed a phase of the Gothic style directly inspired by similar buildings in Belgium, but at the same time the detail is full of unitive feeling. The Abbey buildings at Middelburg, and the town hall and church at Veere were shown by many sketches made by the members, and the great influence of Dutch work in England in the 17th century pointed out. The great attraction which Holland has for architects at the present time is largely due to its beautiful architecture.

BRISTOL SOCIETY OF ARCHITECTS.—The annual general meeting of the above Society was held at the Fine Arts Academy, Queen's road, Clifton, on Monday evening last at 8 o'clock. The election of council and officers for session 1912-1913 resulted in the following gentlemen being elected: Mr. H. Catley, F.R.I.B.A., president; Mr. J. Foster Wood, F.R.I.B.A., and Mr. Mowbray A. Green, F.R.I.B.A. (Bath), vice-presidents. Members of council: Messrs. G. C. Awdry, F.R.I.B.A., T. H. Weston, F.R.I.B.A., G. C. Lawrence, A.R.I.B.A., F. W. Willis, F.R.I.B.A., R. C. James, F.R.I.B.A., W. L. Bernard, F.R.I.B.A., and Mr. C. F. W. Denning, Lic.R.I.B.A., honorary secretary. Associated Members: Mr. C. W. W. Wakefield, Lic.R.I.B.A., and A. B. Botterill, A.R.I.B.A. Mr. Botterill was appointed honorary treasurer. Mr. Mowbray Green (Bath) proposed, and Mr. G. C. Lawrence seconded, a hearty vote of thanks to the retiring president, Mr. J. Foster Wood. Both gentlemen spoke in eulogistic terms of Mr. Wood's services to the Society. Mr. Wood suitably responded. The thanks of the Society were also accorded to the retiring secretary, Mr. T. H. Weston. Mr. R. C. James proposing, and Mr. C. F. W. Denning seconded, the vote to Mr. Weston, who during his three years of office has very ably conducted the affairs of the Society. A most interesting collection of drawings by Bristol architects of the last generation was on view, and added considerably to the enjoyment of the evening. The proceedings terminated at 10.15 p.m.—Any communications dealing with the Society should in future be addressed to the Honorary Secretary, Mr. C. F. W. Denning, Gaunt House, Orchard-street, Bristol.

THE GLOUCESTERSHIRE ARCHITECTURAL ASSOCIATION—A meeting of the above association was held on Thursday, March 28, at the Northgate Mansions, Gloucester, the president (Mr. Walter B. Wood) being in the chair. The business on the agenda having been attended to, Mr. T. Overbury (followed read a paper, entitled, "Recent Representative Society, to the Tower and Spire of the Parish Church, Cheltenham: the Use of Ferro-concrete in Connection Therewith." After a brief historical description of the church, Mr. Overbury gave a detailed description of the work that had been done under the direction of his firm (Messrs. Healing and Overbury) in repairing the tower and spire. Serious cracks had appeared in the spire, and the tower decided that these were due to the oscillation caused by the ringing of the peal of ten bells, which were badly hung on an oak frame at different levels, the walls of the upper stage of the tower carrying the aqueduct arches being exceptionally thin, and without buttresses, and pierced by lights on all sides. It was found necessary to take down and rebuild the top 14ft. of the spire, and the tower and roof, which were defective, were replaced with new, while the old weathercock, discarded at a previous rebuilding, was refixed again. The

thin walls of the upper stage of the tower were strengthened internally by a framework of ferro-concrete piers and cross-beams on the Hennebique system, these piers being dovetailed into the walls at intervals. The walls were being carried on one level on iron frame carried off the thicker walls of the lower stage. While the work was in progress, an additional two bells were presented to the church, and of necessity these had to be hung at a higher level, but carried by the main frame, thus making a peal of twelve bells. The cracks were pointed up and a few defective stones cut out and replaced, the whole of the work being carried out with the least possible cutting to the existing fabric. Messrs. Frankland Phillips and Co. were the steeplejacks, and the ferro-concrete work was carried out by Messrs. Highbrough and Co., of Gloucester. The lecture was illustrated with numerous lantern-slides, detail drawings, and models. A hearty vote of thanks was accorded Mr. Osmerburn for his most instructive and interesting paper.

IPSWICH MASTER BUILDERS' ASSOCIATION.—The annual dinner of the Ipswich Building Trades Association was held on April 10, when the president (Mr. B. Bird) occupied the chair. Mr. C. E. Whitmarsh proposed the toast of "Success to the Ipswich Building Trades Association," and said there was one way in which they could co-operate, and that was in the raising of a living link, because at present it was all work and no profit. The trade engaged the second largest body of men in the country, but in no trade was the profit so little in comparison with the wages paid, and it was on lines similar to these that associations such as theirs could do a great deal of good. To use the language of the day, it was time the builders struck for a minimum profit. Mr. Buckingham, in response, said that in the course of another week he would have been closely connected with the trade for fifty years, and during the whole time the trade had never been properly recompensed. It required a great deal of hard work, time, experience, and tact, and those qualifications should be properly paid. In the building trade proper few had retired in affluence, and quite half had finished up in the Bankruptcy Court, or dependent on charity.

As a memorial of the late rector, it has been decided to restore, beautify, and add to the font of the church of St. Nicholas Cole Abbey, City, so as to convert it into a baptistry. The cost is estimated at about £100.

Bill presented in the New Jersey State Assembly proposed for the appointment of a State architect at a salary of 7,500dol. a year. The Bill has received the approval, it is stated in the daily Press, of the New Jersey State Chapter of the Institute.

The Architectural Association of Ireland notify competitors for the various prizes that all drawings submitted in competition must be delivered, addressed to the hon. secretaries, at the rooms, 15, South Frederick-lane, not later than 6 p.m. on the last prox.

The new wing to Rochelle Seminary has just been completed from designs prepared by Messrs. W. H. Hill and Son, architects, Cork, under whose supervision the work has been carried out, and consists of laboratory, kindergarten, kitchen, classrooms, a suite of music-rooms, and a cloakroom, the building contractors being Messrs. J. Delaney and Co., Cork.

Swiss archaeologists are puzzled about the discovery at Neuchâtel, by workmen on the future site of a hospital, of a vault built in bronze, which they think was erected 600 years B.C. In the vault the skeleton of a young woman was found, whose bones seem to be mummified, and on her wrists were four bracelets in bronze and two in lignite, while by her side was a little bronze bell.

Accompanying the gift of a gavel to the Marlborough Lodge, Liverpool, from Bro. Enoch C. Bromley, Grand Master, State of Mass., U.S.A., was a framed address which announced that the log from which the gavel was made was brought down from Mount Lebanon by members of the Mount Lebanon Lodge. The log came from the same forest where the timber was secured for the building of the Ark and the two temples at Jerusalem.

Building Intelligence.

PETERBOROUGH.—A new built church hall, opened on Friday, has been built by Mr. J. Lucas from the designs of Messrs. Townsend and Fordham, architects, of Cross-street, Peterborough. It is 65ft. by 26ft., and will accommodate 250 people. Two classrooms, divided by a movable screen, are at the back, together with a kitchen. The buildings are designed in a simple form of English Renaissance, the interior of the meeting-hall having a dado of glazed bricks, whilst the roof timbers will be exposed to view, and will be stained a dark oak colour with blacked iron. It is connected with the school by a covered verandah.

SALL.—On Tuesday week Sall church, Norfolk, was reopened after restoration. The church has been almost entirely roofed, the tower, walls, and parapets have been thoroughly repaired, the interior cleaned and renovated, new seating accommodation installed, new organ erected, and two new bells added to complete a peal of eight. The total cost slightly exceeds £8,000. The architect employed for the work was Mr. J. J. Reeve, of Queen Anne's Gate, Westminster, and the repair of the remainder, including the south aisle, south transept, tower, and the side chapels, has been executed under the direction of Mr. Wm. Weir, the architect of the Society for the Protection of Ancient Buildings. The new church furniture, including the organ case, have been designed and made by Mr. E. W. Gimson, of Cirencester.

WASHINGTON.—The interior of Dame Margaret's Home, Washington, has been entirely remodelled. Adjacent to the principal entrance, two large rooms have been converted into one, and this provides a dining-hall capable of seating the whole of the children. Other large rooms on the ground floor have been formed into suitable play-rooms for both boys and girls, and provision has been made for the necessary staff rooms and offices. The kitchen arrangements have been brought thoroughly up to date with efficient lighting and ventilation, and an installation of steam-cooking appliances included. Spacious lavatories and bathrooms have also been formed in convenient positions on the ground floor, and the sanitary blocks have been entirely rebuilt. The laundry block has been put into thorough working order, and fitted with a drying closet and other suitable fittings. The rooms on the upper floors have been formed into large dormitories wherever possible. The institution is now capable of accommodating upwards of 150 children, and the extent of the grounds is about eleven acres. The general contractor is Mr. G. H. Mauchlen, and the whole of the work has been executed under the personal supervision of Mr. Charles S. Errington, A.R.I.B.A., of Grainger-street West, Newcastle.

In connection with the extension scheme of the Monmouth Grammar School, the Haberdashers' Company have accepted the tender of Messrs. Wilcock and Co., of Southampton, for the work, the price being £2,187.

Early last Sunday morning, the death took place of Mr. W. J. Press, the well-known civil engineer and urban councillor of Barnham. The deceased was for some years the surveyor to the urban council, and under his direction the town made excellent progress.

The earliest known portrait of Bonaparte has been unearthed from a lumber-room at Versailles, it was known to exist and to have been painted by Pontormi, one of his youthful companions. Together with that of Mme. Mere, the Empress Josephine, Queen Hortense, and Eugene de Beauharnais, the portrait was brought to light by M. La Malmoussin.

Sir Bosdin Thomas Leach, chairman of the Manchester waterworks committee, and "father" of the Manchester City Council, died on Tuesday at his residence at Timperley, Cheshire. Born in November, 1856, he was one of the original promoters of the Manchester Ship Canal, and was knighted when Queen Victoria visited Manchester to open it in 1894.

Correspondence.

ARCHITECTURAL ETHICS AND CRITICISM.

To the Editor of the BUILDING NEWS.

SIR,—Mr. C. MacArthur Butler, in his recent lecture, says many suggestive things, as reported in last Friday's issue; but in his projected code of ethics he formulates at least one rule which in practice could not be maintained. I allude to rule 13, which provides that it shall be considered unprofessional for an architect to criticise in public print the professional work or conduct of another, except over his name.

This looks plausible enough at first sight; but consider what it really means. Useful criticism of a technically reliable kind in regard to architectural practice, competitions, and exhibitions as at present contributed by practising architects to the professional journals, and also other able writers who are specially commissioned to express their views because of their acquaintance with the subjects dealt with. In future, if Mr. Butler carries this stipulation (which I am confident he will never do), the result would not be conducive to architectural progress. The rule would be more honoured in the breach than in its observance, or men with out technical training would be engaged to do this criticism, or perhaps some indifferent, down-on-his-luck sort of architect might get the job because it had been ruled unprofessional for better men to undertake such commissions—I am, etc., F.R.I.B.A.

PARLIAMENTARY NOTES.

STATUES IN ROYAL PARKS.—Captain Murray (Kendal-shire, Min.) asked the hon. member for St. George's-in-the-East, on Tuesday, whether, in the event of the King Edward Memorial being erected on the site in the Green Park proposed by the King Edward Memorial Committee, or would it be an understanding that in future no more memorials or statues would be placed within the confines of the Royal Parks.—Mr. Benn (St. George's-in-the-East, Min.): The First Commissioner is not ready to promise that he will oppose any scheme which is brought before him for the erection of any statue in any Royal park. He regrets, however, that he cannot pledge his successors.—Mr. Whitehouse (Lanark Mid., Min.): Has not the First Commissioner already announced his intention to place a statue of Peter Pan in Kensington Gardens, and will that statue now be placed there?—Mr. Benn: Yes, sir; this understanding is not retrospective. The statue of Peter Pan will be placed in position on April 29.—Mr. Clegg Gomm (Southwark Rotherhithe, Min.): Is there still any doubt as to whether the statue of King Edward will be erected?—Mr. Benn: I understand that they are proceeding to erect the memorial.

COTTAGE HOMES FOR AGED PERSONS BILL.—In the House of Commons last Friday, Colonel Harrison-Broadley moved the second reading of the Cottage Homes for Aged Persons Bill, which sought to empower local authorities to build dwellings on land given free, and to let them to old persons at sufficient rents to cover interest on the cost. An amendment was moved by Mr. Booth on the ground that the question ought not to be dealt with by piecemeal legislation. On behalf of the Government, Mr. Lewis put forward various objections to the Bill, and the second reading was defeated by a majority of 62.

The Clonakilly District Council have been again considering the question of a water supply for Courtmasherry, and have decided to advertise for a competent engineer to supply "a plan, specification, and drawing for the sum of £10 and 25 per cent. on the outlay, provided it does not exceed £800." As we stated on p. 376, they formerly offered a prize of £5.

There were ninety applications for the post of surveyor to the Clonakilly Rural District Council, rendered vacant by the resignation of Mr. F. C. Meyrick, and the following were selected to attend at the next meeting of the council for the final choice.—Mr. R. Watford, surveyor and inspector of nuisances, Clonakilly Rural District Council; Mr. C. H. Wright, surveyor to Barrow-in-Solr Rural District Council; and Mr. S. C. Rigg, sanitary surveyor to the Downham Rural District Council.

adjoined the examination sine die. The receiving order was made on a creditor's petition.

CHESHIRE BUILDER'S FAILURE. BRINEPIRE BLAMED.—At Crewe, last Friday, Thomas Ernest Blane, coal and builder's merchant, Winstford, attended his bankruptcy examination with liabilities £1,701 and deficiency £1,539. Debtor largely attributed his failure to the decline in the building trade through the Salt Union laying a brine-pipe to Weston Point for new works there. That had stopped building, and frightened people against speculating, they being afraid it would take away trade from the town.

WATER SUPPLY AND SANITARY MATTERS.

TONBRIDGE.—The new sewage-disposal scheme at Tonbridge was declared open on Saturday by the Chairman of the Council. The old works were constructed in 1878, and not proving satisfactory, in 1890 the construction was undertaken of about 400ft. of 5ft. diameter brick tank-sewer to increase the storage to about 100,000gal., the erection of two concrete precipitation tanks (the new ones of tankage with a capacity of 110,000gal.), two gas-engines, (suction pressing-plant, delivery mains, etc., at a cost of £4,250. These works did not prove satisfactory either. The urban council in 1905 were to consider the advisability of remodelling and increasing the disposal works. A destructor scheme was decided upon, but the Local Government Board refused to sanction it. The council then took into consideration the relative merits of various schemes of sewage, steam, and electricity for pumping purposes, and after many discussions and much delay, electricity was decided upon. Sanction being received early in last year to the borrowing of £2,450. The new works comprise reconstruction of the pumping-station, rising-main, high-level tanks, and percolating filters. The electric mains are laid from the council's electricity works, and are about 1,600yd. long. The rising-main from the pumping station to the tanks is about 1,400ft. in length, and the sedimentation tanks are situated on the highest point of the farm, having a capacity of 500,000gal. The works have been carried out by the following contractors:—Pumping station, tanks, filters, carriers, etc., £6,293, Messrs. E. Punnett and Sons, Tonbridge; pipes for rising and supply-mains, etc., £276, Messrs. Cochrane and Co., Dudley; laying ditto, £108, Mr. W. Pratt, Tonbridge; pumping plant, £1,045, Messrs. Gwynne, Ltd., London; electric mains, etc., £1,052, Western Electric Co., North Woolwich; excavation for ditto, £90, Messrs. Ford and Son, Tonbridge. The works were carried out under the supervision and under the supervision of the council's engineer, Mr. W. Lawrence Bratley, C.E., M.Inst.M. and C.E., who has had the able assistance of the council's electrical engineer, Mr. M. P. Plunkett, M.I.E.E., who has had charge of the electric plant; while Mr. L. Webb and Mr. E. M. Hendry, of the surveyor's department, have acted as clerk of works and draughtsman respectively.

STAFFORD.—The Stafford Corporation waterworks at Milford, which were opened in 1890, after years of failure in the search for water, have been considerably enlarged to meet the increasing demands, and the new machinery was started last week. The extensions include the erection of a new engine- and boiler-house, the installation of a new pumping-plant of the deepest type, and the raising of the surface, the construction of a new rising-main to the reservoir, and the laying down of a main from the reservoir to Lord Lichfield's residence, Shugborough Hall. The new engine is capable of raising from the well and delivering into the reservoir, an elevation of 280ft., 1,400gal. a minute, or 1,000,000gal. in twelve hours, which is equal to about two days' supply. The total cost of the works is about £10,000.

Says the *Globe*:—"Milton," we read, "was essentially a City man." The London Museum will not be complete till it has a collection of the garden-rollers Milton borrowed.

Mr. R. Bowring, surveyor and valuer of Walsall, is now appearing in court on the questions of compensation arising in connection with the Glastonbury sewerage scheme.

A very extensive bed of fine clay has been discovered in a field at Knowle, Braunton, belonging to Mr. W. R. K. Riddell. Tests have disclosed the clay to be of the very best quality, and bricks and a pottery are to be established forthwith.

Our Office Table.

Sir Philip Brune-Jones has printed the address that he recently delivered at the Authors' Club, on the "Modern Iconoclasts," which states the case against certain recent developments in art. These he considers originated in a jealousy of the wisdom and achievements of our forefathers, inducing a frame of mind similar to that of an American student, who, at the end of a four-years' study in Paris, thanked God that he had never been inside the Louvre. It is moreover a cult that readily becomes popular, for it demands neither draughtsmanship, composition, colour, nor tone, or still more than these, refinement, imagination, or education. Everyone can be a genius without these qualifications, and so the land is crowded with them. Just as every little boy who helps his small sister out of a puddle is hailed as a "hero," and has his photograph published, to his lasting detriment, so any lad who can draw with sufficient accuracy to distinguish between a cat and a warning-pan will find his cause espoused.

The Art Gallery Committee of the Manchester Corporation has received from the Council of the Ancients Art Museum and the old works were constructed in 1878, and not proving satisfactory, in 1890 the construction was undertaken of about 400ft. of 5ft. diameter brick tank-sewer to increase the storage to about 100,000gal., the erection of two concrete precipitation tanks (the new ones of tankage with a capacity of 110,000gal.), two gas-engines, (suction pressing-plant, delivery mains, etc., at a cost of £4,250. These works did not prove satisfactory either. The urban council in 1905 were to consider the advisability of remodelling and increasing the disposal works. A destructor scheme was decided upon, but the Local Government Board refused to sanction it. The council then took into consideration the relative merits of various schemes of sewage, steam, and electricity for pumping purposes, and after many discussions and much delay, electricity was decided upon. Sanction being received early in last year to the borrowing of £2,450. The new works comprise reconstruction of the pumping-station, rising-main, high-level tanks, and percolating filters. The electric mains are laid from the council's electricity works, and are about 1,600yd. long. The rising-main from the pumping station to the tanks is about 1,400ft. in length, and the sedimentation tanks are situated on the highest point of the farm, having a capacity of 500,000gal. The works have been carried out by the following contractors:—Pumping station, tanks, filters, carriers, etc., £6,293, Messrs. E. Punnett and Sons, Tonbridge; pipes for rising and supply-mains, etc., £276, Messrs. Cochrane and Co., Dudley; laying ditto, £108, Mr. W. Pratt, Tonbridge; pumping plant, £1,045, Messrs. Gwynne, Ltd., London; electric mains, etc., £1,052, Western Electric Co., North Woolwich; excavation for ditto, £90, Messrs. Ford and Son, Tonbridge. The works were carried out under the supervision and under the supervision of the council's engineer, Mr. W. Lawrence Bratley, C.E., M.Inst.M. and C.E., who has had the able assistance of the council's electrical engineer, Mr. M. P. Plunkett, M.I.E.E., who has had charge of the electric plant; while Mr. L. Webb and Mr. E. M. Hendry, of the surveyor's department, have acted as clerk of works and draughtsman respectively.

An exhibition of etchings, drawings, and studies by Mr. Francis Brangwyn, in the rooms of the Fine Art Society in New Bond-street, includes a portrayal of "The Broken Christ"; a taking little picture of "Performing Bears"; an impression, in Mr. Brangwyn's well-known style, of "Cannon-street Railway Bridge"; and a study of "Browning's House, Venice." Others are "The Building of the Ship," "The Bridge of Sighs," and "The Gate of Naples." The four decorative drawings, treating ideally strong men at their will, all well repay a visit to the gallery.

The old "Tithe Barn" which forms part of the group of buildings of which Maidstone Parish Church is the centre is, according to a notice affixed to it, for sale. It is recalled that Mr. Hubert Bensted, in his paper on the Saints' Church and its surrounding buildings, read before the members of the Kent Archaeological Society recently, expressed the opinion that the term "tithe barn" is wrongly applied to this structure, and that it was built for the accommodation of the retinue of either the Archbishop himself when he came to Maidstone, or for that of the exalted personages who from time to time visited him. It is suggested by a local correspondent that the barn would be an almost ideal building for the Freemasons to meet in, and that no exception could possibly be taken to its use for such a purpose.

Mr. T. L. Patterson, F.I.C., F.C.S., read a paper entitled "Study of a Falling Factory Chimney," to the members of the Glasgow Royal Philosophical Society last week. He explained that the chimney in question formed part of the Roxburgh Sugar Refinery at Greenock, and was removed three years ago with blasting gelatine, and as the chimney fell in a different way from that described by the late Professor Rankine, a number of photographs of the event were of interest as enabling one to calculate the time required to reach the different positions shown on the photographs. The peculiarity of the fall was a kind of "knuckling down" process which took place. As the chimney

leaned over it knuckled to the ground near the base, leaving the leaning portion shorter, to knuckle down in its turn when the chimney leaned over far enough. Rankine's theory was that in falling the upper portion of a chimney, after leaning over some distance, fell in a shower of fragments in the air, and the base, but while doubtless true of many chimneys blown over by a gale, it did not apply, the lecturer said, to chimneys overthrown mechanically. In falling the Roxburgh chimney spread itself out to a distance in length equal to the height of the portion overthrown, which was 137ft.

At a meeting of the Royal Asiatic Society on Tuesday, Mr. E. T. Richmond, late of the Egyptian Public Works Department, in a lecture said that among the peculiarities of Egypt, not the least notable was her instinct for rejecting the foreign influences which her position at the gates of three continents rendered exceptionally numerous. The buildings of Egypt generally reflected more clearly perhaps than any other medium the unchanging genius of the land and the deep-seated differences between it and the outer world, whether the latter was represented by ancient Byzantium or by modern Europe. As to-day we saw among a small proportion of Egyptians a process of imitation of Europe in dress, in expression, in political catch-words, and even in architecture unaccompanied by any signs of inward Europeanisation, so in the Byzantine period they were able to trace through the architecture an imitation merely of foreign features. But the architecture of Cairo was essentially foreign. The Egyptian capital had concentrated within it not the people of Egypt, but rather the forces which had contended for the spoils of Egypt. They were as widely different from those of the true Egyptian as were the modern buildings of Egypt, whether represented by the temples of Karnak and Luxor or by the mud dwellings of the present-day peasant.

Elaborate arrangements have been made to enable Pope Pius X. to listen to the pealing of the new bells in the rebuilt Campanile di St. Mark's, at Venice, during the grand inauguration fete, fixed for April 25. This fine peal of bells, with the exception of the larger one, which was recovered, undamaged, in the ruins of the fallen tower and rehung, is the Pontiff's own gift, in memory of his former residence as Cardinal Patriarch of Venice. At the wish, repeatedly expressed, of the Pope himself, special microphones were installed in the belfry, and others have been made ready for the Pope's private apartments at the Vatican. The Italian Government has issued instructions for the Venice-Rome telephone line to be reserved for the space of ten minutes at the Pope's exclusive disposal.

According to a patent (30,035, Dec. 24) by Mr. E. H. Hippé, of Mariendal, Copenhagen, artificial stone, such as malachite, is made by producing in a mould or upon a backing a film of a solution of a salt of a heavy metal, such as zinc sulphate, with or without colouring-agents, or having a coloured effect upon the cement afterwards added, and in some cases adding a retarding agent, and afterwards pouring upon this film one or more coats of a uniform material, which react with the film of metal salt forming insoluble compounds, and thus rendering the surface hard and in some cases producing shades of colour. Size-water containing blood albumen may be added to the cement or salt, and sparkling granular material may be sprinkled upon the salt film. In order to form a pattern the mass is kept in motion, for example by inclining the foundation or mould. The surface may be impregnated with alkaline silicate solution, with or without soluble chlorides.

The Deutsche Rekord Cement Werke, Messrs. J. Krumpelmann and Co., and Mr. J. Krumpelmann, Lüdinhhausen, Westfalen, Germany, have patented a substance for adding to cement to render it waterproof, which consists of ground bituminous shale

treated with hydrochloric acid, and, after the carbonic acid has escaped, heated for about three hours with steam at about four atmospheres. The mass, while still hot, is mixed with gas-tar mineral oil, or the like, and dried at 100deg. C. The substance has the property of forming an emulsion with wet cement, and of emulsifying a further quantity of tarry or oily substances. In one example 75kg. of hydrochloric acid are added to 25kg. of carbonic shale, and to the plastic mass 15 per cent. of tar and 15 per cent. of oil are added. The dried product is added to Portland cement in the proportion of one part of product to eight parts of cement.

The Lumbarmen's Underwriting Alliance of Kansas City, U.S.A., reiterates the recommendation that a thorough cleaning of all woodwork of sawmills and factories, and then the application of a generous coat of white wash, spells very much for decreased fire risk. The Alliance suggests the following approved recipe for the making of white wash: Shake one-half bushel of lime with boiling water, leaving it to settle for 24 hours; strain it, and add a peck of salt dissolved in warm water, 3lb. ground rice put in boiling water and boiled to a thin paste, 2lb. powdered Spanish whiting, and 1lb. of clear glue dissolved in warm water. Mix these well together, and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace, and when used put it on as hot as possible with a painter's whitewash brush.

St. Mary's Church, Waldron, Sussex, possesses a ring of eight bells with a tenor of 12cwt. The 3rd and treble were cast by Wm. Meads in 1770 and 1760 respectively. The 3rd and 6th were cast by Thos. Janaway in 1773, the 4th and 5th were cast by Richard Phelps in 1732. The tenor and 7th were originally cast by Richard Phelps, but were recast by John Warner and Sons in 1887, to commemorate the Jubilee of Queen Victoria. The bells thus represent the work of four different founders, each of whom cast two bells. These bells are now to be recast into a new ring of eight bells with a tenor to weigh 12cwt., and hung in a modern steel frame. The work of restoration has been entrusted to Messrs. John Warner and Sons, of the Spitalfields Foundry, London, and the new bells will be dedicated by the Bishop of Lewes on June 27. The same firm has also in hand the restoration of the bells of St. Michael's Church, North Finchley, also at St. Michael's Church, Bath. The latter bells were originally cast by Abel Rudhall in the year 1757.

France is to have a Rodin Museum, the Hotel Biron, where the sculptor gives his sittings. Rodin offers all his works that are in his own possession, the result of 40 years' labour, his own statues, drawings, sketches, and his collection of antique statuary to the State, to be preserved in that part of the mansion which he now occupies, and which after his death is, according to this plan, to become a public museum, while the fine grounds which surround it are to be a public garden. He offers to arrange at his own cost on condition that he may continue to inhabit his "pavilion" while he lives. He cannot bear to think that the grand old hotel should become either a lycée or a Government office. "A Government office at the Hotel Biron," he declares, "would be a most admirable building. The architects who would not let it on the pretext of preserving it would destroy it, reconstruct, fatally change its aspect, and destroy its characteristic features."

In the course of excavations, carried out at Gillingham, Dorset, in connection with the new swimming-baths for the Gillingham School, interesting archaeological discoveries have been made. About 10ft. below the surface, under an alluvium of blue clay, traces of an ancient lake, or river bed of sand and pebbles were found. Driven into the bed were several stout pieces of oak timber, and these poles were fixed so firmly that it was impossible to extricate them without considerable labour. Further search revealed

the large bones of a deer skull and a red deer's antler, the jawbone and teeth of a large herbivorous animal, and a large number of worked flints. The site is supposed to be that of a very ancient lake-village, similar to, but of greater antiquity than, the famous lacustrine village of Glastonbury, though at present no definite conclusions have been arrived at.

A course of instruction in Structural Mechanics will be given at the London County Council Central School of Arts and Crafts, Southampton row, W.C., on Thursday evenings from 7 to 9.30 o'clock p.m., beginning on April 23, 1912, by Mr. Percy J. Waldram, F.S.I. This course has been specially designed in preparation for the entrance examination, intermediate and final, of the Royal Institute of British Architects. Candidates for these examinations should note that the Board of Architectural Education of the Royal Institute have called attention to the necessity for more thorough knowledge of the subject of structural mechanics on the part of those seeking admission to the Institute. Applications for admission to the class should be made as soon as possible to the Secretary at the London County Council Central School of Arts and Crafts, as the course will only be given if sufficient entries are received.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (APRIL 19).—Institution of Civil Engineers. The 29th James Forrest Lecture, by Arthur Mallock, F.R.S. 9 p.m.
MONDAY (APRIL 22).—Royal Institute of British Architects. Paper on "The R.I.B.A. Library, and Some of its contents," by C. Harrison Townsend, F.R.I.B.A. 8 p.m.
WEDNESDAY (APRIL 24).—Royal Society of Arts. Technical Education in Ireland, by George Fletcher. 8 p.m.
FRIDAY (APRIL 26).—Institution of Civil Engineers. Students Meeting and Lecture on "The Principles and Practice of Agency in Architecture," by F. Frame Thomson, M.I.C.E. 8 p.m.
SATURDAY (APRIL 27).—Junior Institution of Engineers. Visit to the Engineering Workshop and Laboratory and the Electrical Laboratory at the Polytechnic, 307-311, Regent-street, London, W. 3 p.m.

Trade News.

WAGES MOVEMENTS.

LONDON.—A mass meeting of London workmen connected with the building trade was held on Clapham Common last Sunday afternoon in support of the movement for securing higher wages and shorter hours of labour. A resolution welcoming the joint trade movement which had brought the carpenters, joiners, and cabinetmakers together was proposed by Mr. C. H. Young, of the Associated Society of Carpenters and Joiners, seconded by Mr. W. Raynor, London District Secretary of the General Union of Carpenters and Joiners, and supported by Mr. Bramley, organising secretary of the National Amalgamated Furnishing Trades' Association, Mr. Seymour, and the District Secretary of the Amalgamated Society of Carpenters and Joiners, and other speakers. It was contended on behalf of the men that they had not had an increase of wages for twelve years, although during that period the purchasing power of the sovereign had fallen from twenty shillings to fifteen. Every commodity, said Mr. Raynor, had increased in price, including even winkles. Mr. Bramley said that the latest development was that the mason's union of the north of England, which was whose union was one of the most cautious in the country, had determined to throw in their lot with them, as had the four Unions of labourers. The labourers were a powerful factor, for if they stopped work building would have to cease. They also had the support of the smiths and fitters. If they asked for shorter hours, 47 hours a week instead of 50 during 39 weeks of the year, it was that they aimed at diminishing the number of the unemployed, who were particularly large in the building trade. It was for the same reason that they wanted double pay for overtime, as employers would, if that point were carried, do away with overtime altogether. The resolution was carried.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the Editor's attention.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, &c., should be addressed to the EDITOR of the BUILDING NEWS, at 11, Abchurch-lane, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings should be allowed to correspondents at contributors' risk, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. (Of more commonplace subjects—small churches, chapels, houses, &c., we have usually far more sent than we can insert, but are glad to do so when space permits on unusually advantageous terms, which may be ascertained on application.)

Cheques and 1 Post-office Orders may be sent payable to THE STANDARD NEWSPAPER COMPANY, LIMITED, and crossed London County and Westminster Bank.

NOTICE.

Bound copies of Vol. CL are now ready, and should be ordered early (price 12s. each, by post 13s. 6d.) as a limited number are being printed. A few bound volumes of Vols. XXXIX., XL., XLVI., XLVII., XLVIII., XLIX., L., LII., LIII., LIV., LV., LVI., LVII., LVIII., LIX., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., and CL may still be obtained at the same price as the other bound volumes are out of print. Some of the back numbers of former volumes are, however, to be had singly. Subscribers requiring any back numbers to complete volume just ended should order at once, as many of them soon run out of print.

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Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements are also accepted on Tuesday and Wednesday, but must reach the office by Tuesday Morning to secure insertion.

Replies to advertisements can be received at the Office, KINGHAM HOUSE, 1, Abchurch-lane, Strand, W.C., free of charge. If to be forwarded under cover of advertisement an extra charge of Sixpence is made. (See Notice at head of "Situations.")

RECEIVED.—C. H. W.—E. H.—K. and Son.—G. S. V. A.—J. G.—R. C. and Co. Ltd.—E. N. A.—A. H. C. and Son.—J. J. and Sons, Ltd.—S. H. and Co.—H. M. and Co.—E. A. C.—F. M. and Co.

WINNER.—Yes.

T. W. P.—Pencil end.

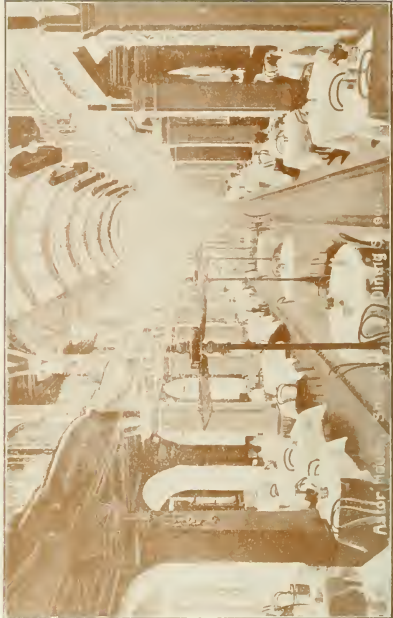
RED FOX.—Forwarded as requested.

P. F. F.—It is not a very reliable material.

(GUTHRIE)—Mealing Brose, High Wycombe. See OUR DIRECTORY, under "Chairs for Churches and Schools."

The Haverth Haverth District Council proposes to build a public abattoir, estimated to cost £200.







CHURCH OF THE INSTITUTE OF ST. MICHAEL. BRUSSELS.—M. J. PRÉMONT, Architect.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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OUR ILLUSTRATIONS.

Church of Laurent, Le Puy. From a Water colour by Professor A. Wallace Rimington, A.R.E., R.I.A.

The Weir Cottage Hospital, Balham. View, plan, and detail. Mr. R. J. Thomson, F.R.I.B.A., Architect.

"Horsleydown," Kingsdown, near Walmer, Kent. Mr. Maurice B. Adams, F.R.I.B.A., Architect.

"Shakespeare's England" Exhibition, Kensington. Buildings from Ashley St., Ledger, Warwick, and Dixter, Northbourne, Kent; and Ledbury Market Hall, Herefordshire. Adapted by Mr. E. L. Lutyens, F.R.I.B.A., Architect.

CONTRACTS AND CONDITIONS.

We published in our issue of the 10th inst. the best report we could give of the meeting recently held by the R.I.B.A., and of the paper read by Mr. Saxton Snell upon the R.I.B.A. Conditions of Contract. There was, as will be seen, a good deal of varied discussion; but we must say that most of it wandered, far away from the practical points at issue. One of the speakers seems to have wound up his address by saying, "In fact, they should talk less and do more." This was a summary of his own view that architects should pay more attention to the carrying out of their own business.

But the remark appears to us to apply to all the endless debates of both the Institute and the Society. That is to say, to architects collectively as well as individually. The speech made by Mr. R. L. Harrison, solicitor, was, perhaps, the most illuminating. He is doubtless aware of the article on "The Responsibilities of Architects" in our issue of January 5 this year, and our other article on "Specialists or Sub-Contractors" on March 22. There were, however, other speakers who evidently had not troubled to notice our clear statements of what the High Courts and the Court of Appeal had really decided. They again freely dealt with the verdicts of juries or the judgments of Referees upon special facts as if these made cases of binding authority to be followed by the Courts in other and different sets of circumstances.

It appears that the present R.I.B.A. form of Contract took five years to make, and although it may have been revised at the time, it now needs modernising. We believe a committee is still sitting upon the subject, and is likely to do so for some years. But the really serious thing is that there appear to be so many otherwise able and intelligent and artistic men who seem to be quite unable to grasp a simple legal proposition. For example, there is the law of principal and agent existing and well established. It is clearly defined, and is accurately known to most lawyers. But architects, in the way of their business, seem to forget that there are any legal rules outside the printed form of contract for the job with which they are concerned. Nor do they generally appreciate the fact that this contract is not a sacred or moral code, binding upon all who have anything to do with the job; but merely an agreement between the parties who consent to its terms. Thus they go on making their own bargains with specialists for goods or work, and imagine that by putting their names in a

form, which none of them have seen, they are bound by its provisions. Then, when the building owner is sued for orders given by them as agents, they complain that the law regards them simply as agents, when it is hard to see how, in respect of these matters, they can be anything else. Architects had better cease giving such orders, or, so by making separate contracts in this regard, by which it shall be clear that they are legally sub-contractors, upon which kind only can the general contractor be made liable.

We note that Professor Reginald Blomfield said that in his own practice he did not, as a rule, have any sub-contractor, as he preferred to make a separate contract for each. This seems to us to be, from both a legal and a business point of view, the safest and the soundest plan. It appears also to be the usual plan in France, where they know something of architecture, and also of business. There the sub-contractor almost entirely disappears, because each trade has its own separate contract. We have a good deal to learn from the French people as a logical and level-headed nation, and it is certain that by their method they escape the solving of those legal puzzles with which we have lately been bothered. The Professor's reason for having a separate contract is also well worthy of being noted. For he said that by doing so he dealt with the man himself, and, further, he saved the building-owner the profits which would otherwise go into the pockets of the general contractor. We do not propose to dwell upon this point, because we here come upon such deep matters as discounts and commissions, and what they are and where they go, and other things which we are quite unable to deal with properly. But there is the fact at all events, that good architects and practical men of business can and do make separate contracts with specialists, which they can both understand and enforce, and so keep clear of muddling up with the general contract for the building. Nor need these distinct arrangements be made upon long, printed forms, with numbered paragraphs and a whole apparatus of provisos. In law a contract means merely a promise and an acceptance, and it is generally found more workable the simpler it is in form.

We cannot follow the various points raised about negligence, because all these matters are questions of fact. But there is one point of principle that should be noted, and that is whether an architect is to be regarded always as the arbitrator as between all parties to the

building contract. It is quite obvious that he cannot have it both ways. He cannot claim to be merely the agent of the building-owner at one time, and, at another, a fully authorised arbitrator. If our Institute or our Society could get together a few guiding clauses as to the legal effect of which they were quite certain, and could form out of these the essentials of every building contract, a long step would be taken in the direction of peace and prosperity. Details could be added, as required, to a form which began by defining the true and legal position of the parties, and the whole should be reduced to a simple contract such as is used amongst commercial men. Different trades have their contracts of bargain and sale, which they know and understand when they use them. There is, and can be, no dispute as to their essential meaning, although questions may arise as to facts and details. Perhaps some day our various committees will achieve a similar sort of building contract for our profession's use.

AMERICAN FOUR-FAMILY VILLAS.

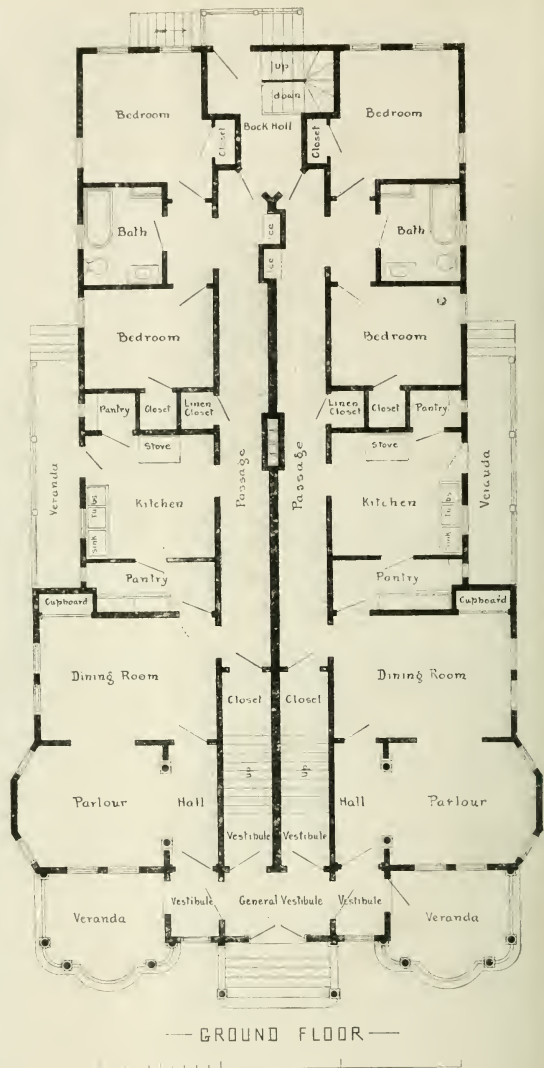
By GEORGE ASHDOWN AUDSLEY, LL.D.,
Architect.

In suburban districts or estates in which land is valuable, and especially where it is of importance to have frontages narrow in proportion to available depths, it may be found desirable to erect four-family villas, of a seemly and the thoroughly convenient character, after the manner followed in certain districts in the United States. The description of the characteristic planning of such a two-story, four-family villa forms the subject of the present short article, illustrated by plans which I prepared for owners of property in the neighbourhood of the city of Newark, New Jersey, U.S.A. The proper aim of the architect, in this direction, is not only to plan dwellings of the greatest accommodation and convenience, within the limits necessarily imposed by the cost of erection and the moderate rent to be derived, but to impart to the exterior of the building a purely single-villa appearance. It is always desirable, as experience has proved, to mask to as great an extent as practicable any direct indication of the multiple residence, such as showing several entrance doorways and other self-evident indications of internal divisions. In the case of the example of which the plans are here given, the appearance was secured of a large and seemly single villa, symmetrically treated, and presenting a single and dignified

entrance-door. How this has been accomplished can be readily understood on examining the plans. While a symmetrical treatment is there shown, it is not always necessary; but it may be remarked that a decided departure from it has been found to be attended by additional expense and some sacrifice of convenience. Four-family villas are only to be recommended when the separate dwellings therein are small, and suitable for small families in which no servant will be required. All possible internal convenience, calculated to save household labour, and a thoroughly respectable and even dignified external appearance (in which useless and meretricious ornament should be conspicuous by its absence) are the chief factors of success in the profitable renting of villas of this compound class. There is a call for hundreds of them in the suburbs of London and other large towns, to be occupied by respectable tenants who have only small incomes, but whose natural ambition is to reside in a house of good appearance in a select neighbourhood.

As no Basement Plan accompanies the Ground and First Floor Plans given in this article, a brief description of its arrangement must suffice. The basement is excavated throughout the entire area occupied by the villa, having a clear height of 8 ft., its outside walls being carried sufficiently above the ground level to admit of direct lighting by windows therein, and of the insertion of convenient coal-shoots. The interior of the basement is divided into four portions, one for each of the dwellings above, containing independent heating apparatus, coal-storage, etc. The coal is delivered through iron hopper-shoots, hinged at bottom, and which fall outward at a convenient angle to receive the coal from the delivery sacks or baskets. When not in use, these hoppers are closed flush with the wall, and locked. Each heating apparatus has a special smoke-flue, so that anyone can be operated independently of the others, commanding its own draught. In a building of this class, necessarily long and narrow in its divisions, steam-heating is to be recommended, unless central heating is confined to the reception-rooms and passages, when the hot-air system can be adopted. In such a four-family villa built in England, fire-places would probably be insisted on for occasional use, when the hot-air system could be omitted from the bedrooms. The basement is reached from all the dwellings by the stairs in the rear hall of the building, shown in the Ground Plan, and an additional general entrance is provided from the outside, through which anything can be taken into or removed from the cellars.

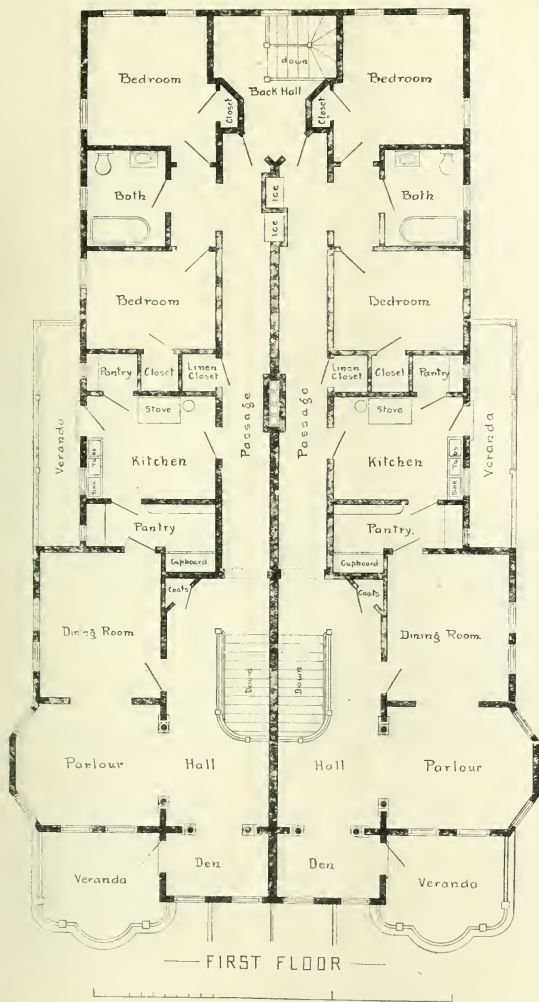
On examining the Ground Floor Plan, it will be seen that the front of the villa has an advanced central portion, flanked by two projecting verandas, ornamentally treated in front, and so far masked by the central portion as to prevent the necessity of persons seated in one being seen or heard by persons occupying the other. A complete separation of this nature is always desirable. As I fully pointed out in my article on "The Planning of American Suburban Residences" (BUILDING NEWS, March 22) the veranda is a most important external adjunct to the generality of American residences; indeed, something of its nature is commonly found in those of a very humble character, and I ventured to remark that the veranda would be a very welcome addition to our own suburban and country residences. It can be very simply designed and constructed at a small cost, and so far as I can see, there is no reason why it should not be as pleasant an out-of-door adjunct here as it is in a country which ex-



AMERICAN FOUR-FAMILY VILLAS.

periences, greater extremes of temperature. After all, it must be realised that the veranda is only an extension of the old English-seated porch, so much beloved by the village gossip in the pleasant evenings. For further particulars respecting the American veranda I may refer the interested reader to the article alluded to above.

The central portion contains the principal entrance, common to all the four dwellings, and treated in a dignified manner, and protected by an advanced open porch. The doors open into a general vestibule, in which are the four doors communicating with the several dwellings. The vestibule is amply lighted in the daytime by the large, bevelled, plate-glass panels in



AMERICAN FOUR-FAMILY VILLAS.

the entrance-doors. Generally, such doors consist each of a narrow frame of oak or mahogany, containing a single sheet of thick plate-glass, widely bevelled, having, with its bold, bronze hinges and furniture, a very handsome appearance. The internal doors on the right and left of the general vestibule open into the well-lighted vestibules of the ground-floor dwellings, while those opposite the principal entrance open into the vestibules and staircases which communicate with the two dwellings on the first floor. These staircases and the halls to which they lead are lighted from

the ceilings with skylights above. By the arrangement just described, all evidence of multiple entrances is effectually masked from external observation, the advantage of which has been already commented on.

All the dwellings are separated from each other by a thick central brick wall, extending from the general entrance vestibule to the back hall, and by thinner brick walls around this hall. All the flues from the heating-apparatus in the basement are formed in the central party-wall, as shown, requiring, accordingly, a single chimney only, and reducing expense in

that direction to a minimum. Recesses are formed in this wall for the reception of the ice-boxes and refrigerators; these are located close to the rear entrances, for the convenient delivery of ice and food which requires to be placed in the refrigerators. Drain-pipes are connected with the recesses to carry away the water from the melting ice. In this country such arrangements are not so necessary as they are in the United States, yet the refrigerator would be a great convenience in our hot weather, and it is to be regretted that it is so seldom introduced in our private houses. When better arrangements are made for the supply of ice at a moderate cost, the refrigerator will soon be looked upon as a necessary article in domestic economy in this country.

As both the dwellings on the ground-floor are precisely alike in their arrangement and accommodation, it is only necessary for one to be briefly described. The open disposition of the hall, parlour, and dining-room is a characteristic of American villa planning, and while it may not commend itself to the ordinary English idea of comfort, experience has shown me that there is much to be said in its favour, especially in cases where the reception-rooms are necessarily of small dimensions. It must be quite evident, I venture to think, that the open effect produced by the arrangement of these small rooms, as shown in the plan, is much to be preferred to the confined effect produced by similar rooms separated in the usual English fashion, and entered by single small doors only. Of course, the adoption of such an open disposition would call for a system of general heating, which I strongly commend to the attention of our villa architects and builders. It would be very convenient to have sliding-doors in the wide opening between the parlour and dining-room, as shown in the plans of the Two-Family House, given in my preceding article on "The Planning of American Suburban Residences," which would give complete separation to the latter apartment when desirable. Such an arrangement would add very little to the cost of construction. An ornamental character is imparted to the hall and parlour by the insertion, in the wide opening between them, of pedestals supporting small columns of the simple Roman Doric Order, in the positions indicated. As a rule, an ornamental feature of this class is left entirely open; but sometimes it is furnished with portières. The opening between the parlour and dining-room, when not fitted with sliding-doors, would invariably be hung with portières. When the door between the vestibule and the hall is closed, the latter may be considered as forming a continuation of the parlour. Should a fireplace be required in the parlour, it can be conveniently located between the windows in the bayed portion of the room. The dining-room is furnished with a cupboard, having drawers below, and glazed doors and shelves above, practically fulfilling the office of a sideboard. The doors from the kitchen to the serving pantry, and thence to the dining-room, are hung on spring-hinges, and open freely in both directions, immediately closing when released. This class of door is most convenient for a person passing to and from the dining-room while carrying dishes, etc. The third door in the dining-room communicates with the passage, and all the remaining portion of the dwelling. Adjoining this door, in the passage, is a good closet, which can be used as a store closet or put to any other desirable use.

The kitchen is conveniently placed with respect to the dining-room, and is furnished with a gas-stove, a cook's pantry, a sink, and two washing-tubs. Its outer door opens

from a long veranda in which tables can be hung to dry in washing days, without being seen and protected from rain. This is a convenience that every housewife will appreciate. The serving pantry is fitted up with drawers and glazed cupboards, as indicated. A glazed set is provided opening from the passage.

Two bedrooms and a bath-room occupy the remaining portion of the dwelling. These are entered from an inner lobby which has a wide opening from the passage, which may be hung with simple pictures if desired. Both the bedrooms have elaborate closets. The bathroom is fully fitted up with a (stainless-ware) bath and wash-basin, a hot water-tank, silent vacuum apparatus, and a towel cupboard. The rear hall will be little used in connection with the ground-floor dwellings, because they have kitchen entrances from the side verandas. Ice and some articles of food will be conveniently delivered at the passage doors, and access to the basement is gained through this hall. The rear entrance and the staircase adjoining it form the only means of access to the passage doors of the dwellings on the first floor, accordingly they will continually be used in that direction.

The arrangement of the dwellings on the first floor is practically identical, so far as the kitchen, bedrooms, and bath-rooms are concerned, with that of the dwellings on the ground-floor, as just described. On examining the First Floor Plan, it will be seen that a considerable change obtains in the arrangement of the front portion of the villa. Confining the description to one dwelling only, it will be observed that instead of the narrow vestibule and hall which obtains below, there are here a comparatively large hall and a den or lounge, the latter having a door to the upper veranda. The veranda is of the same form and size as the one below, but is uncovered in the present design; there is nothing of a practical nature to prevent its being covered. When tastefully designed, double-covered verandas have a very striking effect—expense is, perhaps, the only objection to their adoption in this country. Details respecting the flooring, etc., of the upper veranda are given in my preceding article.

The reception-rooms occupy the same relative positions as these on the ground-floor, the parlour being identical in form, size, and ornamental treatment; but the dining-room is somewhat shorter, and has no cupboard. The serving-pantry occupies the convenient position between the dining-room and the kitchen, and it is about the same size as the one on the ground-floor, but the kitchen is smaller than the one already described. The necessary form of the hall has caused the changes in the dimensions of the reception-rooms alluded to. The hall has a ceiling-light, above which is a skylight on the roof.

branch, as illustrated in the previous article, would be quite out of place, producing a thin and poor effect. In many instances it might even be necessary to design something of a



FIG. 1.

heavier character, for special purposes, than those indicated here, which might easily be done from the few examples shown. Although possible to considerably extend this section alone, it should not be necessary, the six examples showing clearly enough the principles to work upon, which could be readily extended for individual requirements.

The further stage in brick ornamentation,

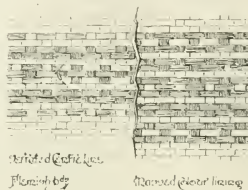


FIG. 2.

that of massed background work, also produces far stronger and more striking results where patterns of a more powerful nature are required, or when placed at a considerable height. A central pattern, such as illustrated in Fig. 4, may be used either on a continuous line, alternated with others at intervals, or, as shown, introduced in a

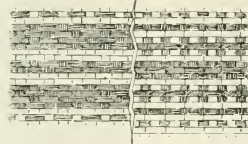


FIG. 3.

longer line of a less prominent pattern of simpler character. Thus, used as a central feature, it breaks up the monotony otherwise produced by the continued repetition of a single pattern alone. This system of massed background work should be also amply illustrated by the succeeding three or four designs. It should hardly be necessary to go into further detail illustrations here, either;

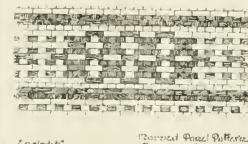


FIG. 4.

the system will doubtless be readily enough grasped from the few given. It should simply be noted that it may be applied where desirable to any of the designs illustrated here or in either of the other articles; merely a little study and variation being required to

extend this branch considerably, as occasional demand, for actual applied work. Massed backgrounds, utilised for many positions, in conjunction with the other methods previously illustrated, would prove a decided acquisition where stronger pattern and contrasts are requisite.

The square-set dimpers and patterns in Figs. 5 and 6 are specially designed to illustrate the principle of formal relief as appli-

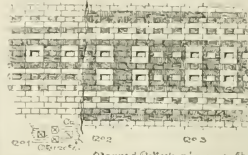


FIG. 5.

able to buildings which should possess a large degree of formality, both in mass of construction, and some method of applied ornament which also adds very materially in conveying such principles. For instance, if arranged in the diamond-shaped pattern illustrated by the grouping in the small alternative sketch on Fig. 5, a far less formal result would be obtained. Whilst these designs might well enough be used in an effective manner on a penitentiary, a fortress, or a prison, it should be needless to observe that they are hardly applicable to a



FIG. 6.

country or suburban residence, a concert hall, or some such structure requiring a lighter and more picturesque form of treatment and, therefore, decoration.

It having been the object of this work to also study the application of the various forms of ornament as best adapted to various buildings, it is as well to draw particular attention to this point. It is only by such study that it is possible to both realise and use the real spirit of "ornament" or "relief," as adaptable to any particular class

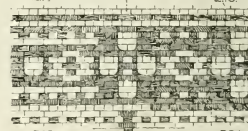


FIG. 7.

of structure. It both should, and can, be so designed, in a very decided manner. Whilst calling general attention to these points, it is not my object to deal more lengthily with it by tabulating every design, with its best possible application, that being left to individual discretion, which could be obtained by study. That these designs, however, possess such application will at once be recognised by those able to appreciate the real spirit of ornament.

There is a further slight variation from a constructive point of view, to be noted regarding illustrations 5 to 8. That is, the introduction of the Queen closers, or half-bricks, which can be obtained ready-made, to

BRICK ORNAMENT. III.

MASSED COLOUR LINING, BACKGROUNDS, AND RAISED PANELWORK.

In conjunction with massed background work, as a preliminary, some attention should be given to massed lining, the latter being quite different to the single and double system of lining, with its various combinations, as illustrated in the previous article. By picking out several examples together, with different variations, as indicated by the illustrations Nos. 1, 2, and 3, a bolder and heavier type of line in massed colour is produced. A type which would be a decided requisite for many classes of large buildings formed in bold mass, with heavy, projecting wings or bays, etc. With the latter description of buildings, the finer and more delicate type of relief in the

set the patterns and line up in correct bond with the rest of the brickwork. These bricks are at present mainly used at an angle to set the courses; but there is really no reason

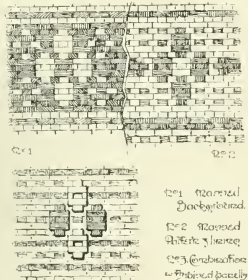


Fig. 8.

why they should not be adapted and utilised in a far wider field, as a valuable adjunct in the setting of ornamental work, obviating a large amount of expensive cutting. Fig. 8 illustrates a system of clustered diaper panelling, merging into that of raised panelling, producing a combination effect.

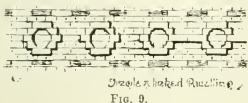


Fig. 9.

Another method of varying this ornament is by linking up the panelling indicated by the succeeding figures—Nos. 9 to 12. Panelling of the type shown by the first illustration on Fig. 10 would prove useful for positions which might need a vertical shape; other designs for such positions could be readily

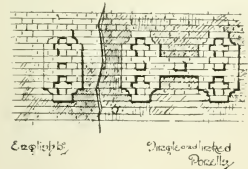


Fig. 10.

adapted in great variety. The system of raised panelling is far better varied, as shown by Fig. 11, running in groups of two, three, four, or more, according to the total extent of the ornament. Also, by alternating or linking up with single panels or pairs a far more pleasing result is obtained than by

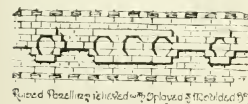


Fig. 11.

a monotonous repetition of single patterns or groups of patterns alone. In fact, the more such are varied, in a system of design, with the other methods of brick ornamentation, the better are the results obtained from a

decorative standpoint—something, for instance, after the style shown by Fig. 12. The central pattern here indicates two methods of still further picking out the panel portions, by darker tones or different colour edging and centres. Either system could, of course, be used for all four panels, varied with the combination as shown, which, again, might be still further varied by detached panels at another point, instead of linking

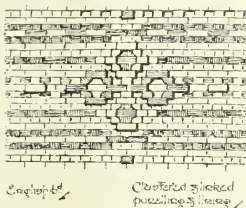


Fig. 12.

together. This, with the combined variation in lining also, largely aids in breaking up that purely mechanical effect which might otherwise be produced. From the style of linking up small panels, with a narrow band of one-course projection, we come to that of a broader system of band panelling, as illustrated by Fig. 13. A perfectly continuous band, of the type shown, could also be used, without linking or breaks, which, with com-

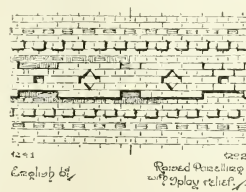


Fig. 13.

bined variations of other moulded bricks in the sunk patterns, would look well as an intermediate relief or frieze.

The same system, grouped and alternated in various depths, or castellated, with the introduction of different lining or sunk effects, produces some good results, as shown by illustration 14. Fig. 15 illustrates a method of adapting the cavetto and ovolo moulded bricks to a finer system of orna-

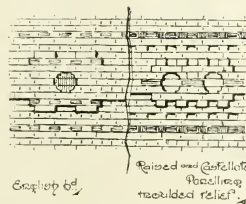


Fig. 14.

mentation, in a specially-set band course of two-brick width; this can easily be arranged in a sound, constructive manner. These finer patterns would be extremely useful for many positions where the larger systems of panelling previously illustrated would prove too coarse. In the example shown the two 9in. bricks which go to form the pattern would have to be slightly cut down and rubbed. The pattern could, however, with a

slight variation in width, be arranged to obviate any cutting at all; but this would give a wider effect in the pattern line when

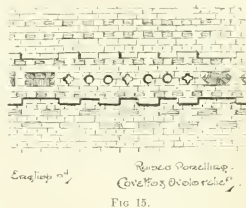


Fig. 15.

would not line up symmetrically with the coursing bond of the wall face above and below. Such points of variation require studying out in detail with regard to adaptability, where the score of expense makes

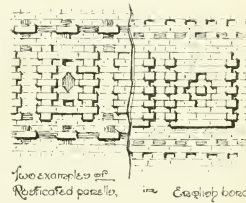


Fig. 16.

such desirable of consideration. The two designs in Fig. 16 illustrate another different system of brick panelling, by means of a very picturesque method, which may really be termed rusticated work. This system,

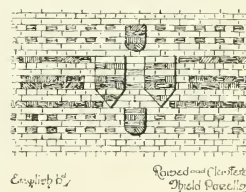


Fig. 17.

applied either to panelling as shown, or other branches, would admit of the production of a large variety of designs. Another effective and highly decorative feature which could be well introduced to this class of ornamental

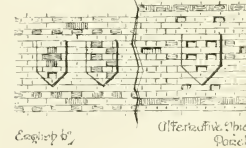


Fig. 18.

work, largely, too, by inexpensive methods, is that of the shield panel. By the use of ready-made half-bricks, the bull-nose and the splay, scarcely any cutting is required by the examples illustrated in Figs. 17 to 21—in some instances, none at all, where a pointed coping can be adapted. At the same time,

even by such simple methods shown, quite a large degree of heraldic effect is obtainable, which would prove a consideration for some special purposes. It would not be very costly either, to combine such simple methods with a little occasional carving. Brick carving.

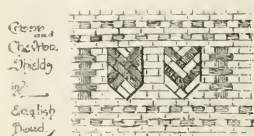


FIG. 19.

too, has a remarkably fine effect. It is mainly on the score of "cost" that we so often hear excuses advanced for the plain or ugly and ill-proportioned structures which abound in such astonishing numbers. These are supposed to be "cheap" and "practical," produced by the so-called and usually self-styled "practical" man. It is plainly evident,



FIG. 20.

from the large amount of this class of work, that he has never even been sufficiently practical to study his materials to the extent of producing a really inexpensive style of ornament with great possibilities in it. Most of these "cheap" buildings, with a wild attempt at some species of "decoration," with glaring stone or cement dressings, set in a vivid red, mainly produce a gaudy, crude, tawdry,

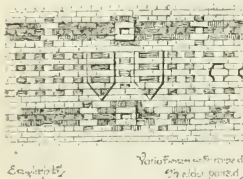


FIG. 21.

and circus-like effect. At the same time, they usually turn out far more expensive by such methods than if a little good and natural ornament in the main material itself were properly applied and studied out technically by competent men who really understand their calling. W. G. KERBY, Architect.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A meeting of the Royal Institute of British Architects was held on Monday evening at 5, Conduit-street, W., the chair being occupied by Mr. E. Guy Dawber, vice-president. Mr. H. T. Hare said he regretted to announce the death of Mr. Robert John Maberly, of Queen's House, Inverness, elected a Fellow in 1896. Mr. John Deane Phillips, of Douglas, Woking, Associate 1881; Mr. Henry Shackleton, of Salford road, Morecambe, Associate 1906; and Mr. Edward Ashby Smyth, of Old Oak road, Aston Park, W., 1911. He was sorry to learn that one of the victims of the Titanic disaster was a well-known architect in Mr. E. R. Kent, of Bournemouth, U.S.A., and would propose that a letter of sympathy be sent to his kindred and only surviving relative. The motion was agreed to on a silence.

Mr. C. Harrison Townsend read a paper, illustrated by over seventy lantern slides and a unique collection of architectural drawings hung upon screens, on

THE ROYAL INSTITUTE LIBRARY AND SOME OF ITS CONTENTS.

The library contains an extremely rare first edition of "The First and Chief Grounds of Architecture," by John Shute (1563). We have, from the Royal Library of France, the "Recueil d'Estampes de differents auteurs concernant les batiments, les tapisseries, tableaux, conquetes et autres sujets ou figures, dans les maisons royales." Our collection of the works of Vitruvius approaches being a complete one, and numbers sixty-eight volumes in Latin, French, Spanish, Italian, German, and English, ranging downwards in date from the "editio princeps" of 1482-92. The very valuable Burlington Devonshire collection consists of no less than thirteen bound volumes, and upwards of 300 miscellaneous drawings. We do not own many drawings of early date. Our oldest is one the delicate and faint line of which prevents the possibility of my having an illustration of it made. It is a sheet containing drawings on both sides, and was presented to the library in 1849 by Sidney Smirke. Among some drawings consisting of the plan and elevation of the principal facade and staircases of the Cilla di Papa Giulio, near the Porta del Popolo, Rome, is one labelled "Original drawing by Scamozzi." This portion of the villa, however, was built for Julius III. not by Scamozzi, but mostly by Vignola, though completed by Ammonati, whom Le Camouille, in his "Edifice de Rome Moderne," ascribes the whole of it. It seems more than likely that the drawing is not by Scamozzi, though certainly a nearly contemporaneous work, and, perhaps, as Mr. Millard has suggested, "a measured drawing from the actual building." There are two drawings—exterior and interior architectural compositions—by Jacob van der Meer (1627-1688), drawn in Indian ink, and delicately touched with wash. A volume of drawings and sketches, presented to the library by Professor Donaldson, contains eighty drawings of scenes and altarpieces, mostly in quite a florid and rococo manner, drawn in brown ink and washed in with bistre or sepia. The drawing shows alternate designs, one of these altarpieces. The date of the work is about 1713. Belonging to the Salvin collection are five valuable sheets of drawings which, there is every reason to believe, are from the hand of Inigo Jones. Two of these represent a proscenium designed, in the one case, for the masque of "Juno's Court, 1633," and in the other for the "Queen's Masque of Hamlets, 1634." The latter of these was, however, I find, actually used for the performance of Davenant's masque of the "Temple of Love" in 1635. In the Crace Collection of views of Old London in the British Museum is a series of four prints engraved by Logan, representing four triumphal arches. Of these we have in the library the original drawings, executed in the same manner as the engravings, and executed in light ink, with an Indian-ink wash, though the engravings vary somewhat from the originals. We now come to a remarkable volume consisting of 120 drawings by some of those draughtsmen of the late 17th and early 18th century, who, I am afraid, come within the category of those "industrious builders of 'Chateaux d'Espanne,' indefatigable and unprofitable designers in the air." The book contains sketches executed in pen-and-ink, or sepia, or Indian-ink wash. We find in it some by Giuseppe Galli, probably executed between 1720 and 1730, consisting principally of theatrical decorations and designs for scenes. The illustration is probably of a design for a monument which was not executed, for in the engravings of it by Piffel we find the two inscriptions are omitted. There are also other drawings, somewhat inferior, by his father, Francesco. Of the Galli family (who adopted the name of Bibiena), there were, as in the case of the Fontana family, several members in different generations noted as architects, and more particularly as designers of "prospective" of theatrical scenery and arrange-

ments. There is also a pen-and-ink drawing of about the same date by Oppenordt, who was a pupil of Mansart, and the architect, amongst other works, of the transepts of St. Sulpice. We find some good drawings of a scenic and baroque design, such as those of a painter of the Fontana family, and of Roman ruins. By Pierre Puget there are also some examples. Of these I show his sketch for alternative treatments of an archway. By Despres is an important drawing in water-colour of the celebration of the High Mass, more noteworthy, perhaps, for its figures and accessories than for its architectural details, which are accurately about the middle of the 17th century. Of several designs by unknown hands for ceilings, painted with perspectived columns and balconies in the manner of the time, I give a characteristic example. There is a drawing of a Candelabrum in brown ink, on the margin of which is written: "Ascribed to Benvenuto Cellini"; but I think we may leave this ascribed without further discussion. By Schut, of Antwerp, a pupil of Rubens, is a heavy and uninspired drawing of an altar and columned altar-piece. Another anonymous drawing is a rather fine conception of an approach to a palace. The last illustration in the book, and the one engraving, is a prize design for the competition, Lyons 1762, for the Hotel de la Marine, which, perhaps, points to an early ownership of the volume. John Talman, son of the elder Talman, who designed Chatsworth for the first Duke of Devonshire, was an architect of considerable note in the early part of the 18th century. As a volume of his sketches and plans shows, he carried out, amongst others, houses for Lord H. Cavendish, and a "V. Lord Devonshire at Lamb's Conduit Fields." Before practising, he travelled to Rome with W. Kent, and in the present volume the outline views of the Rhine, the Danube, and the Wael bear his initials. The Englishman, after his grand tour especially, was even then somewhat "Italianate," and the notes on these drawings are written in a curious mixture of ordinary Italian with English heraldic terms. There is not much doubt, however, that these sketches were not drawn by Talman himself. It is probable that the coloured designs at the end of the book for interior decoration, largely in marble and relief plaster, are from his hand. The original drawings of the Woodstock Ruins of Palmyra, and Ruins of Balbec or Heliopolis, are contained in two large volumes of very laboriously careful sketches. There is a volume of sketches by Chambers and Yenn, the latter of whom was Sir William's pupil, and became an architect of some distinction and an R.A. The drawings consist of designs for fountains, projections, staircases, in the grand manner, garden houses, etc.; but, being unsigned, it is not possible to ascribe the drawings to either of the two artists. In 1764, George Hadfield received the first gold medal for the Travelling Studentship at the Royal Academy. He made use of his tour abroad to make measurements, and collect data for the restoration of the Temple of Fortune at Paestrum, Praeneste, near Rome. He associated with himself in the work Signor Colonna, evidently a member of the family of the former owners of the Palazzo Colonna. The restoration scheme is shown in six beautifully-detailed drawings, one of which, full of minute detail, is no less than 11 ft. long. The library possesses the original water-colour drawings by James Stuart from which the engravings were made for Stuart and Revitt's "Antiquities of Athens," and also a small volume of his sketches and MS. notes. There are in the library nine large drawings by Hardwick—plans, elevations, and sections of the Pantheon from his own measurements. To those who are interested in the work of the late 18th century, when the influence of the Adam brothers was supreme, the book of sketches of ornamental friezes from original models in the possession of Joseph Rose will appeal. By Sir Robert Smirke we have eleven large water-colour drawings, executed during his travels in Sicily, Sardinia, and Greece, between 1801 and 1803. There is a volume by Henry Parke, an architect of the early 19th century. Parke's widow presented these 300 and 600 drawings, which are the result of his tour through Italy, Sicily,

Greece, and Egypt in 1824. One of the original founders of the Institute was John Goldieut, who was born in 1793, and died in 1842. By him we possess about 300 sketches, and 100 designs and projects of his own. One of the sketches is a Pompeian decorative work, probably done for his "Specimens of Ancient Decorations from Pompeii," published in 1825. There is a volume of strongly-coloured drawings by George Wightwick (1802-1872), an extraordinarily voluminous author on things architectural. We have a further volume by George Wightwick, the title of which is imposing title of "My Liber Veritatis." A volume, presented by Professor Donaldson in 1864, contains some water colour sketches, done between the years 1816 and 1819, by Joseph Woods. The drawings are not very good, but those of the Treasury of Athens and the Lion Gate at Mycenae, are interesting. A curious series of sketches and notebooks—no less than sixteen volumes of closely-written and minutely-drawn notes—are the result of John Wolfe's three or four years of travel in Italy, Greece, and France in 1820. Of Elmes's work we have a large collection of drawings and designs, and full-size and other details. There are, mostly drawn by his own hand, several interesting alternative treatments of St. George's Hall, both interior and exterior. The name of T. L. Donaldson seems to carry us very far back, for, though he only died three years before Nesfield, we have two volumes of sketches done in Greece and Rome as early as 1819 and 1821. Curiously enough, one of these is a large volume of sketches of Gothic work, to which one would not have imagined he had much leaning. The list of the works of Donaldson in our library is, I think, longer than that of any other architectural author. A donation to the library by Mr. C. E. Sayer, made some three or four years ago, was a volume by Alexander Roos, a German architect, who was brought by Beresford Hope to England. It contains many beautifully-executed little drawings of coloured decoration. Decimus Burton presented to the library, the year before he died (which was as recently as 1851), forty-two drawings of Classic relief ornament, stone or marble, carved decoration of architraves, strings, etc. They are drawn, and well drawn, on tinted paper in black crayon touched with white. By William Burges we have three scrapbooks in which have been inserted drawings of original designs of stonework and of silver- and goldsmiths' work, domestic and ecclesiastic. The first of these contains several designs of fonts, with their prices attached, all of which, by the bye, seem, in the light of present-day estimates, to be distinctly undervalued. I can imagine this to be pet-bolling work done in his earlier days for some firm. There are four volumes of a modern architect whose influence on the architecture of our own time has, in the opinion of many, not yet been fully recognised. Some of the evidences of the amazing fertility known to many who, like myself, were brought into contact with him, is William Eden Nesfield are to be found in the four volumes of his sketches which the Institute possesses. All of the drawings of R. J. Johnson's "Specimens of French Architecture," published in 1864, are contained in two of the three volumes presented by his widow, the remaining volume consisting of sketches of English Gothic and the execution of which is not on the high level of the French sketches. In 1867 there were presented, through Professor Donaldson, by Texier himself (a gold medalist of the Institute in 1836), five volumes of sketches and details, in gold and colour, of mosques in Constantinople, one volume dealing specially with St. Sophia, the latter Professor Devey's Lethby refers in his "Sancta Sophia." The volumes of Devey's sketches are somewhat disappointing. The majority are of chimney-tops. A collection of very beautiful drawings is contained in two volumes, one of twelve sheets and the other of thirty-three, of the coloured decorations of Norfolk and Suffolk churches. The larger volume of the two is well-known series of screens, and the smaller containing principally roof decoration. These drawings were executed by G. V. Wardle.

Mr. R. Phene Speers, F.S.A., in proposing

a vote of thanks to Mr. Harrison Townsend for his comprehensive and exhaustive paper, remarked that three or four years ago he himself proposed to write a somewhat similar paper on the valuable books in the Institute library, but failed to abandon the idea, and he was glad the lecturer had dealt so fully with the drawings in that collection. It was pleasant to learn that the 16th-century work of John Schut was about to be published, for it would be of great service to architectural students; a first edition of Shute's book was issued in 1563, and was followed in 1573 and 1581 by second and third editions. There was in the library a valuable work by Jean Vredenné de Vries, of Antwerp, published in 1577. He should have liked to have heard reference made to the drawings of Inigo Jones, and also to those of Anthony Salvin. The Institute had established a British school in Rome, and a great many students would be glad to have their attention called to the measured drawings of Hadrian's Villa, by Thomas Hardwick, issued in 1777. George Hadfield, in 1790, published a series of drawings similar to those executed by the Grand Prix French students. Having referred to the beauty of Texier's drawings of Classic subjects, and to the gift to the Institute in 1848, by J. Wyatt Papworth, of a valuable collection of architectural drawings, he mentioned that W. Eden Nesfield, when a young man, spent his Sunday afternoons sketching details of A. W. Pugin's work at the Houses of Parliament, then in progress. A full description of Nesfield's drawings in the Institute collection appeared in the Journal for 1895. There really was not space at the Conduit-street premises for the valuable collection of British Architects to properly exhibit an extensive collection of architectural drawings, nor had they the means to properly classify and catalogue them, and he was glad, therefore, that he was able a few years since, to secure some 1,400 valuable architectural drawings for South Kensington Museum, where they were available for all students.

Mr. E. F. Strange, in seconding the vote of thanks, said the unrivalled collection of architectural drawings was rapidly being widespread, and was now of more than national importance. The drawings by Wardle, of Rod-screens in East Anglia, made between 1855 and 1867, were all supposed to be housed at South Kensington, and the Institute wished to transfer the copies they appeared to have, to the museum, by gift or loan, the favour would be appreciated. It was, he would contend, better that a collection of drawings should be all kept together under national custody, and should be topographically indexed where there was sufficient space and adequate means to provide for them, and where they were accessible to all students, as at South Kensington, than that they should be scattered over the libraries of professional societies.

Mr. Rudolf Dircks, the Institute librarian, said the lecturer had not referred to the Arthur Cates collection of architectural photographs. He hoped that some wealthy member of the Institute would ere long endow the library, and enable it to acquire to its treasures. One of the most interesting of Mr. Townsend's criticisms was his identification of the drawing of the proscenium for the Queen's Masque of Indians, with a contemporary descriptive passage which confirmed the view that the drawing was by Inigo Jones. They had no doubt about that before, but it was pleasant to have such an definite confirmation. Mr. Townsend had referred to the architects who build "castles in Spain." The most interesting volume of original drawings, from this point of view, was the considerable collection to which he alluded containing the work of Bibiena, Panini, Puget, and others. The designs of the Bibiena family and of some of the other artists were of more value, either for stage scenery or for the decoration for some Court festival or pageant. The library was fortunate in possessing an original drawing by Puget. The universality of Puget's genius in its most serious aspect, perhaps, had been appreciated by those who

had seen his works of sculpture in the galleries of the Louvre, whatever might be the general opinion with regard to his work as an architect. With regard to the Talman drawings, collected by Mr. Townsend, and which this architect had the charge of the erection of Hampton Court Palace, under Wren, and his plans in the volume were well known to historians of the building. The original drawings for the triumphal arches for the entry into London of Charles after his coronation (it should be coronation, not restoration) formed part of the Burlington Devonshire collection, and it was at Mr. Craze's suggestion that the speaker compared these drawings with the engravings in the British Museum, with which they correspond, and of which they were, he found, the originals. Later investigation by Mr. Keath, the assistant librarian, went to show that the arches were unquestionably designed by Gerbert. The evidence on this part was unmistakable, the same exhibition of drawings and engravings held in recent years in the Institute library had occasioned many requests for loans for exhibition purposes, and, with the permission of the Council, drawings or engravings had been on show at Manchester, Liverpool, and at the Art Gallery at Whitechapel, as well as at various International exhibitions. Apart from original drawings, the library contained many reproductions, engravings, or volumes of engravings, and prints of considerable value. He was glad to know that, so far from remaining stationary, the Institute collection was in a healthy state of growth.

Mr. W. H. Ward remarked that Mr. Townsend had done them good service in calling attention to the lacunae in the Institute collection, and he trusted that munificent donors would hereafter bear their needs in mind. At present the library committee had but very slender funds to administer as compared with Columbia University, New York, where £1,000 a year was expended on new books, or even with the Institution of Civil Engineers, who grant £600 per annum, of which one half was allotted for binding. At Conduit-street the committee had to manage on a mere £150 a year, £40 of which is expended on binding, and a large part of the remainder was laid out on the purchase of books for the loan library. They needed an additional clear £50 a year for binding, and another £30 to £40 for buying books and drawings.

Mr. Herbert Batsford suggested that the title of Mr. Harrison Townsend's paper should have been altered from "Contents of the R.I.B.A. Library," to "Drawings in the R.I.B.A. Library." He thought the lecturer had somewhat belittled the fine collection of books, and had ignored the valuable great folios. A second and very interesting paper could be written dealing with the books themselves at Conduit-street, and no one could more fittingly undertake the task, together with the compilation of brief biographies of the authors, than Mr. Dircks. They might usefully have a series of short papers on architects, each accompanied by the exhibition of the books and to be followed by discussions. Many of the great architects of past generations wrote books on phases of their art, before they entered into independent practice, and certainly these works had done much to keep their names alive. With all respect to Mr. Strange, he held that the best depository for architectural drawings was the Institute library. An unfortunate omission in Mr. Townsend's paper was the failure to refer to English Gothic Buildings and Ornament, by the late J. K. Colling. When Mr. Colling was in advanced years, the speaker heard that he was not in affluent circumstances, and communicated with Mr. J. Osborne Smith. The matter was taken up heartily by Mr. Colling, and the result was a handsome annual memorial was raised by which Mr. Colling was enabled to spend the evening of his days free from financial trouble, and his drawings were secured for, and presented to, the Institute. Some reference should also have been made by the lecturer to the interleaved copy of Wren's "Parentalia," recently purchased by a body of sub-

scribes, and also to the important collection of oil paintings of their past presidents.

In responding to the vote of thanks, Mr. Townsend said he had not belittled the books in the library, but had desired to confine attention to the splendid collection of drawings. In the preparation of that paper he had been greatly helped at the Institute by Mr. Dorck and his assistant, Mr. Keith. As to the Wardle collection of wood-cuts in drawings, these were, he believed, tracings, possibly of the South Kensington examples, and it would be well if the two sets could be collated.

An exhibition of original drawings in the possession of the Institute is being held in the Institute Galleries to-day (Friday), from 10 a.m. till 8 p.m., and to-morrow (Saturday), from 10 a.m. till 6 p.m., when the exhibition closes.

THE ARCHITECTURAL ASSOCIATION.

At the ordinary meeting, on the 15th inst., Mr. Gerald C. Horsley in the chair, the results of the elections of officers for the coming session were announced as follows:—

President, Mr. Gerald C. Horsley.
Vice-Presidents, Messrs. W. Curtis Green and Maurice E. Webb.

Ordinary Members of Council: Messrs. Arthur T. Polton, Cecil C. Brewer, E. C. Eden, G. Leonard Elkington, Theodore Fry, Stanley Hampp, Alcock G. Horsnell, Geoffrey Lucas, C. Winston Newman, A. Gilbert Scott, W. J. Tapper.

Hon. Treasurer, Mr. Arthur Keen.
Editor of the Architectural Association Journal, Mr. P. Cart de Lafontaine.
Hon. Librarian, Mr. W. H. Ward.
Hon. Secretary, Mr. Herbert A. Hall.

Votes of thanks to the scrutineers, retiring members of Council, etc., having been carried, Mr. Laurence Weaver then gave a lecture on

SOME SCOTTISH HOUSES OF THE RENAISSANCE.

Illustrating his remarks by many lantern slides, he contended that, thanks to the limitations of Scottish architectural literature, many regarded the Baronial building as the beginning and ending of Scottish architecture. That was not so. Although there was nobody in Scotland to take the place of Inigo Jones and Wren, and the men who followed them in England, yet there was a really serious school of Neo-Classic architecture in Scotland, started by Sir William Bruce. The first introduction of the Renaissance in Scotland was in 1539, when James V., returning to Scotland with his second bride, &c. about improving Falkland and Stirling Castles. Hamilton of Farnham, an illegitimate son of one of the Earls of Arran, who, having started his architectural career by killing a carpenter, and had at the Court of Francis I. become imbued with the ideas there prevalent, was James's Master of Works at Falkland and Stirling, and was appointed Surveyor-General of all the Royal Castles in 1549. He was executed in 1561, and so there was nothing more done of importance in Scotland in Renaissance for about another sixty years.

From 1600 to 1630 English influence was manifest, but to no great extent. Holyrood Palace was more typical of the late 17th century and in Sir William Bruce repeated the old Scottish tower, filling in with the Renaissance. The plan of Kinross House, also said to be by Sir William Bruce, was Palladian. The plan of Dalkeith House was difficult to follow. The large part added at the end of the 17th century, said to be by Vanbrugh, was obviously by Mr. James Smith, who succeeded Sir William Bruce. Falkland had been restored by the Marquis of Eglar, but the excellence of the work was due to Mr. Knapp, the architect. There was not much Renaissance detail about Stirling Castle. Kelso Castle, Dunderrave, and Earls had had been restored by Sir Robert Lorimer. Traquair had not been restored by anyone. Winton, one of the finest things in Scotland, and said by some to be the outcome of English influence, was the work of George Wallace, a mason-mason. Glamis had been

added to. Some fine plasterwork there was more advanced in design than some of the other extremely barbarous work. Cawdor had remained unaltered in large measure.

New Hailes House, just outside Musselburgh, whether by Wm. Adam or not the lecturer did not know, was not very attractive, nor was he very enthusiastic about Drum House, near Edinburgh, which, no doubt, was Wm. Adam's work. Robert Adam built Gosford House, so that Lord Wemyss might not have to travel six miles to play golf; but it proved so damp that it was uninhabited for eighty years, till Young altered it considerably. Several views of modern houses by Sir Robert Lorimer were shown, and one by Mr. Frank Bees, of some what remarkable plan, said to be a whim of the occupier.

A brief discussion followed. Mr. Guthrie, Mr. T. A. Edlton, Mr. Curtis Brewer, Mr. C. C. Brewer, Mr. H. W. Britton, and Mr. W. H. Ward took part, the only very pertinent comments being made by the last-named, who spoke of the high impression—shared, we fancy, by more of us, that there is a good deal of 16th century work in Scotland besides the few examples quoted and shown by Mr. Weaver. In reply to the vote of thanks, Mr. Weaver said his photographs were only the spoils of one visit to Scotland; but he had many others, and several of them were of houses by Wm. Adam.

THE SOCIETY OF ARCHITECTS.

The sixth ordinary meeting of the Society of Architects for the session 1911-12 was held at 28, Bedford-square, W.C., on Thursday, April 11, 1912, at 8 p.m. Twenty nominations for Membership and six for Studentship were announced. The ballot was then taken, and the following candidates were declared to be duly elected:—

As Members.—Brown, Fred Abnest, 16, Trinity-road, Springfield, Chelmsford; Foley, Thomson, North-Bairstead, Beverley, Yorks.; Valencia, Gerald, 28, Charing Cross-road, W.C.; Gair, Studentship, Bell, Charles, 43, Mountjoy-square, Dublin; Clarke, Percival John, 24, Castle-street, Liverpool; Coupland, William Vernon, 33, Upper Richmond-street, Chelsea; Cooper, George, 18, Dale-street, Runcorn; Donmett, W. W., Phoenix Hall, Frome; Hoile, Gerald John Harwood, 24, Edlington-road, Patney, S.W.; McGinness, Edgar Francis, 98, Elmhurst, Fairfield, Liverpool; Moor, Alfred Ethelbert, 101, Telephone-road, Southsea; Reid, Gilbert, 24, Alan Hill, Craigmore, Wickham-avenue, Bechill-on-Tyne, Tyndal, Mitchem, 28, Warren-street, De Beers, Kimberley.

Mr. C. McArthur Butler, F.C.I.S., secretary of the Society, then opened a discussion on "Some Principles of Professional Practice and a Code of Ethics," which we gave in our issue of April 12.

Mr. R. G. Lovell, A.R.I.B.A. (member of Council), in moving a vote of thanks to the secretary, said the idea of forming a Board of Professional Control was a very excellent one, provided an assurance was forthcoming that it could be got together promptly. If, with the object of gaining greater unity, they were to wait for the co-operation of all the allied societies, the Royal Institute, and the other institutions mentioned, he could easily foresee that the matter would drag on for as long as their previous negotiations with regard to Registration. The Society prided itself on the fact that it was the forerunner of Registration, and he saw no reason why they should not adopt the same attitude with regard to the suggested Code of Ethics, and he thought the Council would be acting in the best interests of the profession by pushing the matter forward immediately. As a society, it was their duty to go ahead in a matter of that kind and leave for future development the question of professional unity. In putting forward a Code of Ethics for the profession, they should first of all consider their own members, who would in all probability look for a code of a practical character. The interesting letter which they had heard from Nottingham touched the spot very accurately. After all was said and done, they were out for a living, and although they tried to be as modest as they could, those who were doing good work to the bulk of their members did not care to hide

their light under a bushel. He could not see any difference between putting the architect's name on a board and having it engraved on a corner-stone of a building, and he would urge that a very comprehensive view of this question should be taken when the matter came up for consideration.

Mr. A. O. Collard, F.R.I.B.A., in seconding the vote of thanks, said the subject appealed to him as a betterman at the A.A. School for something like fifteen years on professional practice. He had listened with keen enjoyment to Mr. Butler's paper, and thought it would come as a surprise—possibly a painful surprise to many architects, that any such suggestion as a body to control professional practice and to institute a Code of Ethics was necessary or desirable. Many of them, he assumed, thought to get along in the profession without treading on other people's corns, and without committing any professional enormity, possibly for want of courage, but more likely by reason of a high moral rectitude. He did not suppose Mr. Butler would have broached the matter at the instigation of his Council were he not in possession of some facts which made him feel the necessity of some Code of Ethics. The most serious there was some great evil to be cured and remedies were suggested, it was usual to state what those evils were. It would be a very delicate matter, but he would like to receive some indication of the extent of the misdemeanours which actually were known to happen and which had occurred in the past. He thought the offences, whether they were small or great, should be stated, and it had often occurred to him that it would be a warning to any possible backsliders if the Institute and the Society were to give an outline of those cases of unprofessional conduct which came before them. He thought Mr. Butler's suggestion might be carried out so far as requesting the different societies to appoint delegates to consider whether a Board of Professional Control was really desirable, and he would be absolutely necessary to decide the matter one way or another in the minds of these gentlemen by informing them definitely of the nature of the things which had happened. There were two broad divisions of misdemeanour: that against a brother professional man, and even worse conduct against the public. Regarding the latter, there was the Common Law to deal with such matters, and he did not know whether Mr. Butler suggested that the Common Law should be set in action against offenders by the proposed Board, or whether the latter was merely to control the action of members of the profession in connection with their own brethren. He wondered whether the architectural profession was on all fours with those other great professions of Law and Medicine. He agreed that public attention was sometimes drawn to cases in which members of those professions were seriously dealt with, but he thought that in nearly every case it was for offences against the public, so that he did not know whether they could base their reason for wishing for such a controlling body on the professions of Law and Medicine. He wondered whether the draft Registration Bill, for which the Society of Architects was so famous, and which had proved to many minds so highly desirable, contained any reference to such a Board of Control and Code of Ethics. The author had referred to a Code of Ethics which was apparently in force for civil engineers, and perhaps he could quote from it, to show to what extent that code would correspond to one desirable from the architect's standpoint. He did not understand the reference to the possibility of such a code limiting and hampering members of their profession. It was interesting to note that in Canada architects were compelled to belong to some professional body, and that they had a Code of Ethics which, apparently, was administered under an Act of Parliament. One could imagine that in a new country rapidly growing there might be some members of the profession who would not find sufficient work of precisely an architectural character, and

might, therefore, become involved in other work, to the disadvantage, perhaps, of the profession generally, and it was very possible that it was from the necessities of the country that the necessity for regulation arose. Mention had been made of a schedule of the principles of practice and a Code of Ethics. Was it suggested that there should be two distinct schedules? Was not a schedule of the principles of practice the same thing as a Code of Ethics? The reference to the standard of architectural conduct as it was in the minds of the public caused him to wonder whether it often happened that architects were invited to accept work on inadequate terms. If it was so, it was quite outside his knowledge. He was not sure that it was not more distinguished to be excluded from those titular honours to which reference had been made. An architect was usually so absorbed in his work that he made no effort to achieve greatness in the form of knighthoods, and by the time an important building was completed the architect had often experienced so much trouble with his clients in large works in order to achieve his desires in producing a fine building, and there had been so much friction from time to time, that when the question of honours arose the architect was neglected. There was always someone who was in touch with the power, that he; whereas the architect seldom, if ever, was; and he did not think that the architect was altogether to be pitied for not gaining the public distinctions. Mr. Butler had quoted some words from the American Institute which were so brief and accurate and so admirably set out that they would occur naturally to anyone considering what the functions of an architect really were. It was suggested among other main principles that arrangements should be made for supplying the client with a duplicate set of drawings, etc. The client ought to pay for these, as before the end of a job so many variations had usually to be made from the original design as to necessitate a fresh set of drawings, and if the client was told beforehand what it would involve it would be found that most of them would agree without demur. With regard to specific charges of architects, he noticed that it was suggested that a minimum charge should be made. He thought with Mr. Butler that it was a very doubtful advantage to have any fixed charge whatever, and that it would be better to leave it open, so that a man could charge whatever he thought himself worth. There should be nothing to prevent a man charging ten per cent. if he thought he could get it, as there was no reason why he should. In certain special work a man might have retained himself thoroughly and the value of his work be worth two or three times as much as the ordinary scale gave him. It was rather severe on young architects to suggest that they must not compete with regard to fees or undercut to secure work. He knew that some of the public thought it was a perfect right to offer a young architect less than they would pay an older man, although he might be the more skillful designer, and he did not see how that could be met. It seemed a little hard that young architects should not be allowed to work at a lower figure, bearing in mind the fact that many of them were able to work at home, and so avoid the heavy charges which some of them had to bear before they made a place. Some of them had been able to be drawn to define what was and what were not honorary services. It had often happened that an architect gave his services gratuitously, but after his expenses had been paid there was very little difference. A man should not be able to obtain work on apparently honorary terms, doing some other man out of the work, and yet reap some benefit from it. He noticed that expert services should command payment proportionate to the responsibility and difficulty involved, but who was to be the judge of that value and responsibility? Naturally they themselves knew what it was worth; but was it suggested that architects should be the judges of their own value? That was the

point upon which the Courts came into conflict with them, and was also the reason why the Courts sometimes ignored the Institute's scale of charges. He did not quite understand what was meant by experts naming prices in competition with each other; did it mean that architects should not tender in regard to their fees? A good many points were introduced which scarcely referred to a Code of Ethics, and were the ordinary things which one knew about. For instance, the temper of the man who initiated initiative on the part of craftsmen and other workmen should be recognised and encouraged. They were all only too pleased to get into touch with the craftsman; it was an education itself to the young architect, and a charming part of the work for older men. There was one difficulty, however, especially on big jobs, in the shape of the foreman, who hated to see the architect stop one of the craftsmen, and whenever possible prevented it. Most of them, however, had quickly snubbed the foreman to keep in touch with the craftsman. With reference to the building trades and architects not engaging in any work unless as owner, what view were they to take of the peculiar scheme connected with Gidea Park? The promoters, no doubt, were imbued with a desire to benefit the younger members of the profession, and so far they ought to be very grateful to them; but, at the same time, it brought about a state of affairs at the present time which most of them deplored. Many young architects with very little money had become involved in speculation with one or two houses, and were associated with builders in a peculiarly close fashion which could not but tend towards lowering the standard of the profession. That was his own opinion, and he thought that if it were possible for the suggested Board of Control to put a stop to schemes such as that it would be doing a very great work. They must acknowledge that in all probability the promoters of the Gidea Park scheme had no such injury to their profession in their minds; they must give them the credit of wishing to do good both to themselves and to young architects; but he doubted if the same gentlemen would indulge in that sort of scheme again. With regard to advertising, it was a very vexed question as to what was advertising and what was not. He was sketching only recently in an old part of London, and upon an adjacent site was a huge board with the name of a well-known architect upon it. He had no personal feeling in the matter, but he wondered whether that sort of thing could be considered advertising or whether it would be regarded as an announcement on behalf of the client that the site was available. The whole question bristled with difficulties. Some might say that if one sent a beautiful design to the black-and-white room of the Academy with one's name written large upon it, such a course would be advertising; others might say it was not, and he thought that the Nottingham friend had a good deal on his side in making the remarks that he did. Although he had never done either himself, he could not see the difference between putting one's name on a board and putting it on a building after completion. He thought if the architect were to put the design on the board as well as his name, it might help matters, because they could then see the beauty of the case might be made by the building, and the case might be side by side with the name of the architect who was responsible for it. When they attached initials after their names it was always considered legitimate in regard to professional matters, and he asked how the matter would be regarded when they were used outside the profession—say in social matters. Would it be regarded as derogatory? If one belonged to a distinguished society, the renown of that society would be spread by the use of its particular initials, he thought. They all must deprecate the fact that sometimes anonymous communications are made to the Press; he did not think that many architects took advantage of the columns of

the Press for abusing other architects; but he supposed that architect editors would still be allowed to write anonymously, or was it suggested they should be stopped? He was not sure whether it would be wise for a Code of Ethics to include a reference to architects taking an active interest in the proceedings of their particular society, because if every member turned up at their meetings they would have to hold subsidiary meetings all over the building. Mr. Butler had said that "even under his client's instructions an architect should not 'engage in or encourage any practice contrary to law or hostile to the public interest . . . as he is not obliged to accept a given piece of work.'" He (the speaker) was not so sure about that. The necessity to earn a living was the devil which drove most of them, and he could easily believe that under certain circumstances a man might be driven to do it. Referring again to the scale of charges, none that he had ever seen formulated had been satisfactory, and if anyone ever could suggest a really satisfactory scale he would achieve renown in the profession. He learnt that in Canada "membership in local associations of architects is compulsory by law on those who desire to use the title of architect; but he did not think many of the cared much about what they were called, provided they could get the work, and he could not see that whatever a man might style himself it would prevent him from doing architectural work. If they had a law limiting the practice of architecture to those who had qualified themselves by the customary methods it would prevent the genius from arising. Take, for instance, the surgical profession; they were all aware of the great homester, an absolute genius in the art of setting a broken limb and quickly doing it without injury and without any surgical qualification; yet the man was a born genius. Was that sort of genius to be cramped and prevented from rising?

Mr. W. H. Seth Smith, F.R.I.B.A., said they had met to consider their moral obligation not only as individuals but as members of corporate capacity as a class of public servants, and this not merely from the point of view of expediency or custom, but, as he understood the author of the paper to imply, from the loftier standpoint of character as formed on the universally acknowledged, but little obeyed, axiom of doing to other men as we would they should do to us. This principle might be interpreted thus:—We do not desire to benefit ourselves at the expense of the interests and rights of others, whether clients or builders—e.g., we will not use our corporate powers (statutory or otherwise) to restrict the freedom of any man to employ any amateur instead of one of our profession if they prefer to do so. He did not know of any greater want in the architectural profession than a well-earned monopoly in this subject, as approved by the councils of the various societies, which could be put into the hands of every student as a textbook on this vital question. He claimed for the British professional unions [as distinguished from trades unions], that the vastly improved public esteem and confidence or status they enjoyed is due to their having in the past laid down and pursued a policy based, broadly speaking, on the following lines:—

1. They have endeavoured not to limit the freedom of individual members beyond the necessary protection of the equal rights of his fellow members.
2. They had never attempted to force employers to remunerate their services at a fixed or unreasonable rate. The civic might reply that they were not even then so limited enough; but the fact that fair payment has been forthcoming in spite of this corporate disability is proof of their sweet reasonableness!
3. No one was granted membership whose training and skill was below the standard the Society set up, and this educational policy was diligently organised and improved.

4. A standard of moral etiquette was demanded. No commission was to be accepted from third parties. Members were expected never to depreciate the qualification of their colleagues or to tout for employment where others of their calling were retained, etc.

5. No limitation of the numbers of members or of their hours or output of their work was attempted. It was realised that the man of exceptional talent and endurance was entitled to translate his superior powers into proportional wealth; or that the man with heavy domestic responsibility to burn the midnight oil.

6. No inducement to join the Society was offered other than the advantage that knowledge gives and the fact that corporate action in resisting injustice was more powerful than individual effort.

7. The question of remuneration was the first point dealt with, for the reason that to insure the confidence of employers, and the consequent increase and permanence of employment, freedom of contract was necessary, and the public must be convinced that it served their interests best to employ those who had strenuously fitted themselves to be experts, and whose claim to this profession was acknowledged by their own class—their and architects.

It was assumed, and he thought justly, that clients were willing to pay reasonable fees if the advantage was clearly commensurate. The policy was, in short:—

a. To benefit the public by giving the very best of services.

b. To benefit their members by fellowship and by due preparation for professional duties, and thus enable them to reap the confidence, work, and pay which invariably result from such a policy.

c. By organised resistance to frustrate attempts on the part of individuals, corporations, of the Legislature to impose unfair or unjust conditions on their members. Should such moral or legal resistance be abortive, the obvious and final resort was the corporate withdrawal of service. This weapon the medical profession had been obliged for the first time (this winter) to threaten to use, and architects, though not so immediately affected by democratic employment and democratic legislation, have had to adopt a more limited degree by their recent agreement not to enter competitions unfair to their members.

It is abundantly clear, therefore, that the confidence they had won had been much more due to an ethical policy rather than by one of expediency, and in discussing the question, he hoped their past experience would encourage them to continue on these general lines while seeking to elucidate, emphasise, and enforce them. This, he considered, was Mr. Butler's object. His definition of an architect's functions and responsibilities was admirable, and his accounts of the ethical codes in connection with architectural societies in the Colonies, America, and France were very interesting. One would like to see them, whether in existence or in draft, printed by the Society of Architects, as a basis for further consideration and discussion before formulating and systematising one for Great Britain. The author was surely not right in stating that of the great professions, architecture was the only one not regulated by Act of Parliament. He did not think engineering or surveying were so regulated. Mr. Butler's suggestion that the R.I.B.A. Code, as presented in the *Kalendar*, was very meagre and insufficient, might, he thought, be admitted. Continued and confirmed Registration, as he was, he was not sure that the Registration Act which they might, and he believed should, obtain before long, would enable them to make more public or to enforce such a code of morals as was suggested. It would be directed to the machinery of training and directory making. The real value that such a code possessed must always remain a matter of esprit de corps though its existence is an expression of a more character which will go a long way to influence

Parliament to favour legislation having for its object the protection of the community by bodies animated by such unimpeachable moral principles. The great value of statutory Registration would be, as Mr. McArthur Butler premised the bringing of the at present detached architect under a commonly-accepted code of architectural etiquette; but legislation directly or indirectly compelling any man to join a professional body would be a gross breach of the liberty of the subject, and should never be suggested in applying for a Registration Act. As Benjamin Kidd says:—"Every party in the State—nobles, middle classes, and middlemen—has endeavoured in its time to identify the State with its own interests. The quarrel of Society with each of them in turn in the struggles of history has been that they have all endeavoured, when they held the State in their power, to exact from the community more than they were entitled to for services rendered in terms of social utility. To hold the community up for the most they can extract from it." Let them see to it that no tincture of this class selfishness laid them open to future censure. As to Mr. Butler's suggested creation of a Central Board of Professional Practice, he should discuss any additions to the existing organisations such as the R.I.B.A., which, as the central, oldest, largest, and most influential body, should lead in all such matters. They needed to strengthen and co-ordinate such organisations rather than to multiply them; but perhaps such a board might with great advantage be established by the R.I.B.A., by the strengthening of its practice committee and by including representatives of other recognised architectural bodies, or a court of appeal or ethics, however, should be the R.I.B.A. Council, which would undoubtedly be in a better position than any new body to bring moral pressure to bear on private clients or public bodies, and, as Mr. Butler added, it would be difficult for any detached architect to avoid having occasionally to appeal or to ignore the regulations or decisions of such a board of professional etiquette. He heartily endorsed the author's advice, that it was time to prepare such a code to be approved by the various societies, the breach of which would be generally understood to constitute unprofessional conduct, and he was glad to hear that already considerable interest was being taken by them in this suggestion. The R.I.B.A. had of late done great service for the entire profession in connection with competitions and other matters. On the vexed question of a scale of charges, the R.I.B.A. was averse to a rigid scale, at any rate before they had obtained a Registration Act; but he believed that an optional schedule, recognised and approved by all societies of standing as representing a minimum charge, was essential. The present scale issued by the R.I.B.A. was a poor one, but he believed it was at the present time undergoing an exhaustive revision by a strong committee, and he hoped the result would be reasonable and elastic, and that it would, if possible, recognise the difference between experience and inexperience, eminence and mediocrity. Although the R.I.B.A.'s past educational policy and the newer responsibilities of architects went far to justify a better remuneration than is now current, he felt sure that until their part, but acceptable also to the public.

Mr. McArthur Butler had made many useful suggestions at the end of his able paper as to the points to be included in the suggested Code of Ethics, which were worthy of careful consideration.

Mr. Arthur J. Martin (President of the Institute of Sanitary Engineers), said his opinion was the somewhat unconventional one that they should not lay too much stress

upon the interests of their respective professions. It was of no use for them to make rules, for instance, as to soliciting work and scales of fees if the client as well as the professional man did not loyally abide by them. If it were recognised that an architect was acting in the interests of the public as well as in his own, it would be found that the public would co-operate with them. Objection had been raised to the code of rules, that they were difficult to enforce. There were, of course, very great difficulties, but in regard to some points of professional conduct, he did not think that mattered very much, because the value of rules of conduct lay not so much in the hard and fast line which they drew, so much as that it defined for the information of all concerned what should be the practice of the profession. For instance, with regard to a scale of fees, he did not think it was practicable to enforce a scale.

Mr. A. S. E. Ackermann, B.Sc., A.M. Inst. C.E., said he thought more attention might have been drawn to the professions of law and medicine, from which they might learn a very great deal from their experience.

Mr. A. Alban H. Scott, M.R.S. Inst. (Member of Council), said that most of the discussion had turned on the question of architects' fees, which he thought a great pity, because the question of the code of rules upon their fees as a secondary consideration, and did their work for the work's sake. With regard to the remarks which had been made as to the principle of payment by commission being an immoral arrangement, no doubt it was an unhappy one, but the young architect, he thought, fully realised that his career would be made not by his financial income or by piling up the number of commissions, but by getting economical buildings for his client and making, and afterwards maintaining, a proper reputation. In the course of their work, architects had to deal with specialists and structural engineers, and there was an undoubted tendency at the present day for everyone to more or less specialise, which meant that the main object of the aim of the paper seemed to be exactly the same, that of the labour market, namely, to get national federation. The legal and medical professions had it to a certain extent, and there was no doubt that professional combination had resulted in nothing but good both to the public and to the respective professions. Similarly, architects would benefit by a greater professional unity. With regard to certifying, he thought it should not be allowed in any form. With regard to the protection of members of the profession, he thought the suggested Board of Control an excellent idea, because in the case of an honourable architect having suggestions made to him regarding his reputation it would be quite a simple matter for him to submit the case for thorough investigation of the Board of Control, when he would immediately be protected from further slander. A good many jobs were lost to architects through the freeholder's surveyor supplanting the architect originally invited by foregoing certain fees.

Mr. Butler had said that architects should accede to the lawful demands of local authorities, but he was not sure that what was a lawful demand. Sometimes the public would amount to blackmail as practised on their clients by the local authority demanding a strip of land at the front of the site in consideration of their passing the plans. In such a case an architect would be perfectly justified in resisting the demand. The question of a fixed scale of charges was a difficult one, inasmuch as the public would be fixed and would have to be for the most simple work and then it would be very difficult to get a higher rate of payment when more difficult work was obtained. He did not think their present mode of payment was any system at all. He thought that a client could not justly be asked to pay for an extra set of plans at the completion of a job. Every architect knew that for a decent sized job it was absolutely necessary to have a plan prepared showing exactly how the work had been executed. The architect had to be in a position to give the surveyor proper particulars for measuring up valuations, and he did not think it was right for the architect to

be the first to commence putting in a bill for extras, which should be taken into consideration when the fees were arranged. With regard to the architect's duty to the contractors, it was often found that the work of the latter was retarded by the architect supplying the details long after they were required. Mr. Butler suggested that it was unprofessional for an architect to accept any commission or substantial service from a contractor. He, the speaker, did not know whether "substantial service" was a legal term, but thought it would be better if the word "substantial" were left out altogether. The scale of charges should, he thought, be entirely omitted.

Mr. A. Lawrence Cox, F.S.I., A.M.I.C.E. (Member), said with reference to the remarks of the previous speaker, that he quite understood the position of the architect in regard to local authorities, when they refused to pass the plans unless a strip of land were given up. He had had some experience with local authorities, and he thought if plans were submitted that were strictly in accordance with the local by-laws, the local authority could not insist upon such a demand, but where the plans deviated in some way, and some sort of bargain were made between such authorities and the client, he did not think there was any real source of complaint. In many cases building owners and local authorities made concessions, and were more or less satisfied. In regard to advertising, some professional bodies raised no objection to it, while others did. He thought it made very little difference whether they, as a Society, objected or not, for architects would advertise in some form or another, although there were some extraordinary creatures who apparently did not care for publicity or remuneration of any sort. He saw no reason why advertising should not be permitted, so long as it was indulged in moderately.

The Chairman, Mr. Percy B. Tubbs, F.R.I.B.A. (Vice-president), then summed up the discussion, and said he personally hoped that a Code of Ethics would be adopted, and that the Council of the Society would appoint a Committee to inquire into the matter. The discussion that evening would be of the greatest possible assistance to them. There would, of course, be some difficulty in enforcing a code, and he would very much like to see a Board of Professional Control as suggested by Mr. Butler. He thought it quite possible that if it were properly constituted it might ultimately develop into the Registration authority if they were so fortunate as to get a Bill through Parliament. With regard to the charging of a commission, he quite agreed that it was absolutely wrong in principle, and ought to be altered at the earliest possible moment. With regard to illicit commissions being no longer necessary, owing to the recent Act of Parliament, he, the speaker, thought it had made matters worse if anything. But as architects were originally only one man, was considered to be in the part, and he was the receiver of the commission; but under the Act both giver and receiver were condemned, and so as the lips of both were hermetically sealed, there was less likelihood than ever of such things becoming known.

A vote of thanks to Mr. Butler was then put to the meeting, and carried with acclamation.

Mr. C. McArthur Butler said he would reserve his reply for the next meeting.

Mr. G. A. S. Middleton, F.R.I.B.A. (communicated), says the author seems to have said everything almost, and to have taken an attitude that is most difficult to attack. Perhaps it may be open to debate whether a written code is so good as one which is understood as leading to possible better decisions when circumstances might warrant a lenient attitude. Being at the same time, the value of strict discipline is great, and machinery for its universal enforcement, with safeguards for even-handed justice, are much needed. His impression is that the inclusion of some representatives of the public on the Board of Control might be a step to secure this in all cases. He has also been suggested that it might be made of forbidding a custom, by no means

unknown, of giving commissions for the introduction of work and for information of work likely to come, to officials, perhaps, of public bodies, enabling members of those bodies to be "got at."

Mr. A. B. Hayward, Member (communicated), thinks as the ownership of drawings is one of the most important things to be remedied at the present time, and that it is most unjust that the client should be considered the owner of them in the eyes of the Law, they being merely the instruments employed by the architect to produce the building ordered by the client, and as such should be as much the property of the architect as his fee-square or his five-foot rod. As to the scale of fees as sanctioned as present, it appears to him to work fairly well on the whole, except when it comes to the question of paying for applications to County Council, Local Councils, drawings for District Surveyor for certificate, or, in the case of public buildings, for his use. The architect must be paid for these, yet the number of them required has increased considerably of late years, and the scale as issued by the R.I.B.A. hardly makes it sufficiently clear that fees for such work are over and above the 5 per cent., and sufficient emphasis is not made in the scale of the fact that these charges in some cases amount to a considerable sum, and clients are not clearly led to understand that this work entails much extra labour and time, and that the architect is entitled to have always obtained payment for them, but a client might sometimes think that he is being mulcted pretty heavily, and consider an architect an expensive luxury, when he finds that he has to pay for so many additional sets of drawings for authorities whose *raison d'être* may seem to him merely to be in their turn to supervise the architect. With reference to advertisement, he thinks the modern tendency originated by the Garden City Movement Exhibitions, and the *Daily Mail* Cheap House Brand of Exhibitions, is a mistake, and does harm to the profession. Illustrations of one's work in journals, books, papers, collections of designs of houses, etc., etc., seems to him to be quite fair and legitimate, and if considered advertising, is legitimate advertising.

Mr. H. Freyberg, F.S.I., Member (communicated), considers that if in drafting any Code of Ethics for professional conduct, all architectural, surveying, and engineering institutions could first agree to certain general principles applicable to all members of those institutions, it would not only bind them, but also could not fail to influence the unattached people and the general public.

Mr. H. Guichard Todd, F.S.A. (Scott.), Member (communicated), says the practice of Ethics cannot be codified in relation to architecture any more than they can be codified to the practice of art, to which it is sister in ideal and temperament. To attempt to do so is to degrade the profession to mere commercialism, which, of course, being on a lower plane, demands the protection of rules for individual safeguard against the misuse of antagonistic forces.

FAULTS IN THE THEORY OF FLEXURE.*

By HENRY S. PRICHARD, M.A.M.S.C.E. As the ordinary flexure is almost universally used, not only in proportioning simple beams, but in the solution of all questions involving the elastic deformation of structural members, the nature and influence of its faults—by reason of which it is not rigidly accurate, but only approximate—should be generally understood.

It is generally recognised that the ideal material and conditions assumed are not wholly achieved, and it is shown in some elaborate treatises on the theory of elasticity, but not ordinarily realised, that, even if it were possible to have ideal material and conditions, the theory would still be faulty. For instance, it is shown by Professor C. Bach that a cross-section originally plane does not remain plane during flexure, as is ordinarily assumed, but is forced into a reversed curve

somewhat like a long *f*, only much less pronounced in ordinary materials; and Professor A. E. H. Love states that the ordinary equation for shear distribution gives an average intensity across the breadth of the section, and that actually the distribution is not uniform, as is tacitly assumed in nearly all textbooks.

It is not necessary to master profound and highly complicated treatises on elasticity to understand the faults in the theory of

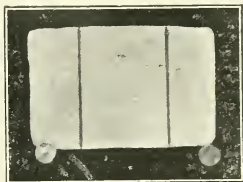


FIG. 1—Rubber Beam. Not Loaded.

flexure; while, for the purpose of allowing for these faults after they are understood, judgment, assisted by approximation and tests, is of more practical use to engineers than the much-involved expressions of mathematical investigators. For convenience, the further discussion of the subject is divided into sections.

SECTION I.—DEFORMATION OF CROSS-SECTIONS.

The fact that a cross-section originally plane is forced by flexure into a reversed curve somewhat like a long *f* can be readily shown by marking the position of a cross-section on the sides of a free, good, soft rubber eraser, such as is used by draughtsmen, and then bending it by the thumbs and forefingers, or by loading it as illustrated, Fig. 1 being the unloaded and Fig. 2 the loaded beam.

The curve developed in an originally plane cross-section by loading the beam can be explained by considering the distortion produced by shear. To simplify the analysis, consider a vertical cross-section of a horizontal beam at a point where there is no bending moment, and where consequently the strains are due entirely to shear.

According to the theory of flexure, the shear will be greatest at the neutral axis, and gradually decrease until it becomes zero at the extreme top and bottom fibres. The theory is correct in this regard, although faulty with reference to the law by which the shear diminishes. The shear acting on the horizontal and cross-sectional faces of an originally square increment will cause one diagonal of the increment to lengthen and the other to shorten, etc. in the various increments shown in Fig. 1, A, and these distortions will be less for each succeeding increment from the neutral axis towards the top and bottom fibres. Consequently, the originally vertical transverse faces of these increments will not remain in the same transverse plane, but will form a curve, as in Fig. 1, A.

The curves of the successive cross-sections of a beam towards the point of no-shear will gradually approach a straight line, and reverse in direction after the point of no-shear is passed. The intensity of the horizontal stresses in successive horizontal fibres will vary in accordance with the changes in the lengths of these fibres; but these changes evidently will not be in direct proportion to the distances of the fibres from the neutral axis, as indicated by the ordinary theory of flexure. Hence the ordinary equations for determining the extreme fibre stresses, in which the moment of inertia is a factor in the amount of the stress, are not strictly accurate, because this use of the moment of inertia is based on the proposition that the intensity of the stress in any fibre varies in direct proportion to its distance from the neutral axis. In these circum-

*To be read before the American Society of Engineers, May 1.

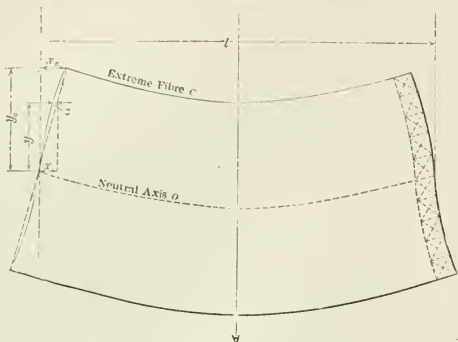


FIG. 1A.

stances, the questions arise: "Can the theory be corrected in this regard?" and "To what does the error involved amount in practice?"

An exact general analysis, if developed, would be so complicated, and its application would necessitate so much labour and consume so much time, that it would be wholly impracticable to put it to any general use. It is practicable, however, to determine, in cases selected as criteria, close approximations to the corrections which should be made to allow for the error involved in assuming that cross-sections originally plane remain plane during flexure.

For horizontal beams of constant and

and end of the beam; a = the area of any horizontal layer of the cross-section; M = the bending moment at the centre of the beam corresponding with f , as determined by the ordinary theory of flexure; M' = the true bending moment corresponding with f ; l = the length of the beam.

By the ordinary theory of flexure, the intensity of the stress in any fibre is—

$$f x \quad x = f y \quad y$$

For any given f , M is constant for all values of l , and

$$M = \sum \left(f a' x y = f a' y' \right) = f l \quad (1)$$

By a refined method—

$$M' = \sum \left(f a' x y = f a' y' \right) \quad (2)$$

The mean intensity of stress in the extreme fibre between the centre and the end of the beam equals $2f/3$.

$$x = \frac{f l}{3 E} \quad (3)$$

From Equations 1 and 3, Equation 2 becomes

$$M' = f l \quad y - (3 E \sum a' x' y' \div l) \quad (4)$$

As a study for a contemplated paper on plate girder design, the writer made a comparison, which is given in Table 1, between the results of Equations 1 and 3, for the steel beams, shown in Figs 2A, 2B, 2C, 2D, and 2E. In computing the numerical value of

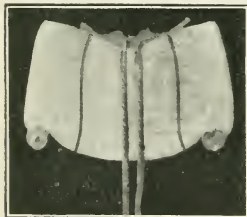


FIG. 2. Rubber Beam Loaded.

usual cross-sections, uniformly loaded within the elastic limit, and with ends simply supported, the cross-sections at the centre will remain vertical during flexure (as is evident from the symmetry of the condition as regards the centre), the maximum intensity of stress in each horizontal fibre or layer will occur at the centre cross-section, and the change in the lengths of the various fibres will be proportional to the maximum intensity of stress therein.

The change, caused by flexure, in the length of each fibre from the end to the centre of the beam is also the amount by which the end of each fibre moved from its original free position in the vertical plane passing through the end of the neutral axis, as shown in Fig. 1.

Let f = the intensity of the stress in the extreme fibre; y = the distance of any fibre from the neutral axis; x = the distance of the extreme fibre from the neutral axis; x' = the shortening of any fibre between the centre and end of the beam, indicated by the ordinary theory of flexure for a given f ; x_0 = the shortening of the extreme fibre between the centre and end for a given f ; Δ = the difference between x and the true shortening of any fibre between the centre

the true bending moment, the values of x were determined for the distribution of shear indicated by the ordinary theory of flexure, which distribution thus applied tends towards a slight under-estimate of the value of the bending moment. The lateral contraction in the web accompanying and at right angles to the extension from tension was taken as one-third of the extension, and the lateral extension accompanying and at right

angles to the contraction from compression was taken as one-third of the contraction, which ratio is, if anything, somewhat greater than the mean of experiments; and the summation in the second member of Equation 4 was rendered simple and closely approximate by the homely device of dividing the beam into a considerable number of finite elements, and considering the mean shear in each as the average of the extremes, which tends towards a slight over-estimate of the value of the bending moment. The next result of these approximations is to overstate slightly the error involved in the assumption that originally plane cross-sections remain plane during flexure. In determining the maximum length for which shear is the governing consideration, the greatest permissible intensity in shear was taken as three-fourths of that in tension.

TABLE 1.—Giving, for the beams shown in Figs 2A, 2B, 2C, 2D, and 2E, the percentages by which the indicated capacity for uniformly distributed load, when computed by the ordinary theory of flexure, assuming the extreme fibre stress as the criterion, should be reduced to allow for the error involved in assuming that originally plane cross-sections remain plane during flexure.

| Beam in figure. | Ratio of web area to total area. | Coefficient. | Percentages by which Indicated Capacity should be Reduced. | |
|-----------------|----------------------------------|--------------|--|----------------------------|
| | | | For length—depth, as below. | For length—depth equals 10 |
| (1) | (2) | (3) | (4) | (5) |
| 2A | 28 to 100 | 219,400 | $332 \div 42 = 8.0$ | 2.0 |
| 2B | 36 to 100 | 153,700 | $234 \div 41 = 5.7$ | 0.91 |
| 2C | 34 to 100 | 122,700 | $134 \div 11 = 3.3$ | 0.73 |
| 2D | 71 to 100 | 94,000 | $88 \div 11 = 2.1$ | 0.56 |
| 2E | 100 to 100 | 81,100 | $40 \div 10 = 1.0$ | 0.51 |

For girders 2A, 2B, 2C, and 2D, shear governs when length is less than given in column 1.

When the lengths of the above girders are more than twice their depths, the approximate percentage of reduction can be obtained by dividing the coefficients given in column 3 by the squares of their lengths in inches.

In obtaining the ratios given in column 2, the web was taken the full depth of the beam.

The beams from which Table 1 was computed have thin webs; but the webs can be increased without affecting the results, provided corresponding changes are made in the flanges. A consideration of Table 1 shows that for very short beams the erroneous assumption that originally plane cross-sections remain plane during flexure leads to a considerable over-estimate of their capacity to resist bending stresses, while for long beams and those of moderate length the error is of little practical importance.

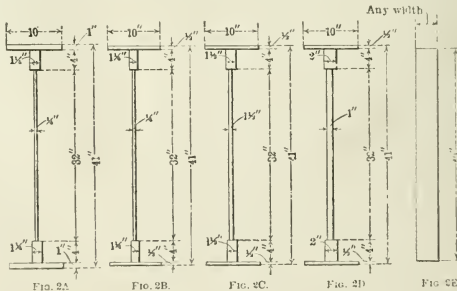


FIG. 2A.

FIG. 2B.

FIG. 2C.

FIG. 2D.

FIG. 2E.

SECTION II.—MANNER OF LOADING.

Beams frequently rest on supports, and occasionally are suspended; loads are applied sometimes at the top and sometimes at the bottom; and, in the case of I shaped beams, the loads and reactions are sometimes distributed as nearly as practicable over the entire depth of the web.

A fault—and, as far as concerns I shaped beams with thin webs, the most serious fault

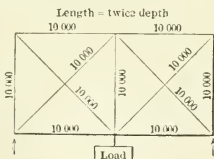


FIG. 3A.

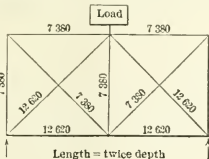


FIG. 3B.

—in the theory of flexure is that it does not take into account the manner in which beams are loaded and supported, but is developed on the tacit assumption that just the right proportion of each load and reaction needed to produce the theoretical changes in shear reach each horizontal layer of the beam without producing any stress in the layers above or below. When this tacit assumption is not realised, the distribution of shear and horizontal stress will not be the same as indicated by theory, and vertical tension or compression, as the case may be, will be produced in the web.

A double lattice girder with a length of twice its depth, shown in Figs. 3A and 3B, is chosen to illustrate by analogy the principles involved, because it is a simple case in which the stresses can be readily determined from the laws of elasticity. In such a lattice girder the changes in the stress in the diagonals occur at the top and bottom, and if the loads and reactions are applied in suitable proportions at these points there will be no strain in the vertical members—in fact, no need for vertical members; but, if otherwise applied, vertical members will be strained.

In the case illustrated in Fig. 3A the loads and reactions are applied entirely at the bottom, and the vertical members are therefore strained. The girder is designed so that the stresses in each member have an intensity of 10,000lb. per square inch. If now the position of the load is changed from the bottom to the top, as in Fig. 3B, more members will be strained in one system than in the other; therefore, it will take less load to produce the common deflection in one system than in the other, and the stresses will be less in one than in the other. In fact, the stresses will be increased in the members of one system, and decreased in those of the other, by 26.2 per cent. By analogy, it is proper to infer that similar differences occur in the distribution of shear and horizontal stresses in beams, and should be considered, when the beams are very short, in gauging their capacity. The percentage of difference rapidly decreases with increase in length, and is inconsiderable in beams of ordinary lengths.

It is usual and necessary in designing built Σ beams, known as plate girders, to provide for the vertical compression in the webs, from heavy concentrated loads and reactions, by reinforcing the webs with vertical stiffeners between the flanges. As is well known, it is not customary to do this with rolled Σ beams. The only other way of avoiding the overstraining of the webs in such cases is to use Σ beams in which the webs and flanges are proportioned so that there is sufficient metal in the webs to resist not only the shear indicated by the ordinary theory of flexure, but, in addition, the tendency of loads applied at the top and reactions applied at the bottom to crush and buckle them.

Architects and engineers should give earnest attention to this phase of the subject. The old and tried shapes, which for many years have been standard for Σ beams, have fairly thick webs and well and amply proportioned connections between the webs and flanges; but new shapes, made possible by new methods of rolling, are now rolled which have a greater proportion of metal in the flanges, and for which greater strength in proportion to their weight has been computed by the ordinary theory of flexure, and

unreservedly claimed, but which have webs in which resistance to crushing and buckling under concentrated loads and reactions has been considerably reduced as compared with the resistance of the webs in the old shapes.

SECTION III.—DISTRIBUTION OF SHEAR.

The ordinary equation for distribution of shear, criticised by Professor Love, is as follows:—

Let Q = the total shear on any cross-section of a beam of constant cross-section; q = the intensity of the shear at any point in the cross-section (see text below and conclusion at end of this section); m = the statical moment of that portion of the cross-section outside of the horizontal line, in which intensity of the shear is obtained, taken about the neutral axis; b = breadth of the cross-section at the point where the intensity of the shear is obtained; I = the moment of inertia of the entire cross-section.

$$q = \frac{Qm}{Ib} \dots\dots\dots (5)$$

This equation is usually given as applicable to solid sections of beams of all possible shapes. Except for the influence of the faults discussed in Sections I. and II., it really gives, as pointed out by Professor Love, the mean or average shear across the breadth of the cross-section. The tacit assumption, in most of the textbooks, that the intensity



FIG. 4A.



FIG. 4B.



FIG. 4C.

of the shear is uniform across the breadth of the cross-section, can be analysed.

If a number of very thin, independent, equal rectangular beams are placed side by side, as in Fig. 4A, and then loaded, the portion of each in compression will be laterally expanded, and the portion of each in tension laterally contracted, as in Fig. 4B; and if the loads on each are suitably varied by increasing them from the centre towards the outside beams, so as to produce the necessary deflections, and if the sides of the beams are brought into contact, they will collectively appear as one with a cross-section bounded on the top and bottom by curved lines, and on the sides by lines inclined towards each other, as in Fig. 4C. The elemental beams, on account of their extreme thinness, have no lateral stiffness, and can be brought into contact by lateral forces so small that the stresses they produce are negligible.

If, without disturbing the position or shape of the elemental beams, their sides are now joined so that the hitherto separate beams form a single homogeneous beam, of which they are equal vertical layers, there will be no stress or shear on their vertical sides, but each layer will be in the same condition of stress and shear as it was when an independent beam; and the shear on the combined beam will not be uniform across the cross-section, but will increase from the centre outward.

If, after joining the original elements, the load on the intermediate vertical layers is increased to equal the load on the outside layers, each intermediate layer will deflect,

but, in so doing, will transmit part of its load to the adjacent layer toward the outside. The outside layers, therefore, will continue to carry more than a pro rata share of the total load, and therefore have more than a mean intensity of shear.

For very broad, very shallow rectangular beams, such as could be formed by a wide, thin plate, the difference in distribution of shear across the breadth of the cross-section is considerable, but, for ordinary rectangular cross-sections, it is evident that the lateral deformation affects the deflection of the different vertical layers so little, in comparison with the total deflection, that there will be hardly any appreciable variation in the shear across the breadth of the cross-section. These conclusions agree with those of St. Venant, who was the first to make a satisfactory mathematical investigation, and his conclusions were endorsed by Sir William Thompson (Lord Kelvin).

The influence of lateral deformation on deflection, and, consequently, on distribution of shear, will similarly be of little consequence in solid beams with round, oblong, diamond, or other symmetrical cross-sections, which are not unduly broad and gradually reduce in breadth from the neutral axis toward the extreme fibres, as in Figs. 5A, 5B, 5C, and 5D.

If the distribution of shear in such a beam was analogous to the distribution in a large number of very thin independent vertical beams having the same deflection, and, in the aggregate, the same cross-section as the beam under consideration, the load carried by, and, consequently, the shear on any cross-section of, any one of the vertical layers, as compared with the entire beam, would, unless the beam was very short, be closely proportional to their respective moments of inertia, and the mean intensity of shear would be closely proportional to their moments of inertia divided by their areas; that is, to the square of their radii of gyration. (This proposition is based on the ordinary equations for deflection, with the qualifying word "closely" added on account of the faults

discussed in Sections I. and II., and of the omission from the ordinary equations of the influence of shear on deflection.) Further, cross-sections of the vertical layers, being rectangular, would, according to Equation 5, have a maximum intensity of shear exceeding the mean intensity in the proportion of 3 to 2. Applying these propositions to the centre vertical layer:

Let n = the radius of gyration of the entire cross-section, and h = the depth of the centre vertical layer.

The square of the radius of gyration of the centre vertical layer is $\frac{1}{12} h^3$.

The ratio of the mean intensity of shear in the centre vertical layer to the mean intensity on the entire cross-section is as $h^3/12$ is to n^2 (6)

And the ratio of maximum intensity of shear to the mean intensity of shear on the entire cross-section is as h is to n (7)

Table 2 is a comparison of ratios of maximum to mean intensity for various cross-sections, as derived by applying Equations 3 and 7, respectively.

TABLE 2.

| Cross Section. | By ordinary Equation 3. | By Equation 7. |
|----------------------|-------------------------|----------------|
| Rectangular. | 3 to 2 | 3 to 2 |
| Round | 4 to 3 | 3 to 1 |
| Square Diamond | 1 to 1 | 3 to 1 |

The assumption on which Equation 7 is based, that the vertical layers act like independent beams having a common deflection, is not tenable, however, as the deforma-

tion from shear, illustrated in Fig. 1, in adjacent independent beams would not match, but would be greatest toward the centre. In the united section each successive vertical layer, from the centre toward the outside, in distorting would transmit some of its shear to the adjacent section. Hence the ratio of maximum to mean intensity of shear would be intermediary between the values indicated by Equations 5 and 7.

For the square diamond there is another method of determining the maximum shear, the results of which are suggestive. If the load is resolved into components parallel to the diagonals to the sides of the beam, and if the intensity of the shear from each component are combined, the ratio of maximum to mean thus obtained is 3 to 2, which is the same as for rectangular cross-sections, and probably not far off for any of the cross sections in this class.

The distribution of shear in beams with solid rectangular, round, oblong, and diamond, cross sections is of academic rather than of practical interest, as shear is not a critical matter in such beams unless they are very short, in which case, owing to the faults discussed in Sections I. and II., the ordinary theory of flexure is too faulty to use, and experiments should be the criteria.

In giving the ordinary equation (Equation 3), textbooks should state that q is the mean intensity of shear across the breadth of the cross-section at any point, and that, for rectangular cross-sections and webs of Σ and τ beams, the intensity of the shear is nearly uniform across their breadth, but that it varies for other forms of cross-sections.

(To be continued.)

TOWN PLANNING CONFERENCE.

A Conference on Town Planning, convened by the National Advisory Town-Planning Committee, was held on Wednesday and Thursday (yesterday) at the Westminster Palace Hotel, under the presidency of Alderman W. Thompson, of Richmond, Surrey. The proceedings were conducted by means of questions and answers, the prepared papers being taken as read, and no long speeches being made. The papers submitted were contributed by Mr. H. R. Aldridge, on "The First Stage of a Town-Planning Scheme"; by Mr. Harold Shawcross, on "The Second Stage of a Town-Planning Scheme"; and Mr. George L. Pepler, on "The Planning of Roads in Town-Planning schemes."

The question was raised whether existing parks and recreation grounds should be included in town-planning schemes. At Sutton Coldfield a 21-acre park was excluded, but a Carshalton recreation-ground was included, on the ground that it might at a future date be required for workmen's dwellings or some other purpose. In reply to a question whether Crown lands should be included, Mr. Ward, of Portsmouth, stated that the War Office absolutely refused to allow an area of their land to be scheduled in the town plan, though it was being sold and developed as a building estate. The chairman said this was a case of which public notice should be taken by questions in Parliament. There was no reason why a Government department should be exempted any more than a municipality.

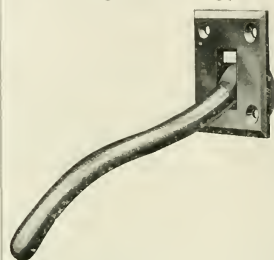
The question of the relaxation of by-laws in order to allow residential areas to be developed on garden-city lines produced an animated discussion. Several representatives declared that councils had no power to modify their by-laws; but it was stated that this was done at Southgate and Ruislip, and Mr. Morton, of Rugby, said that in their case the Local Government Board sanctioned the exemption of a defined area from the operation of certain of the model by-laws. The Chairman also stated that the Board had approved of a by-law which allowed modified roads on Mr. Reckitt's garden village at Hull. Mr. Reay Nadin, of Sutton Coldfield, and Mr. H. R. Aldridge, urged that it would be a fatal policy to relax road widths and the conditions of road-construction by by-law. Mr. Raymond Unwin,

architect of the Hampstead Garden Suburb, recommended roads for residential parts of a town-planning area with a width of 16ft. Some of their 20ft. roads at Hampstead cost 11d. per foot for maintenance, whereas 40ft. roads cost at least 6d.

On the motion of Mr. Seward James, of Birmingham, seconded by Mr. Abbott, of Ruislip, a resolution was unanimously passed requesting the Local Government Board to consider the advisability of dispensing with the service of personal notices on landowners affected by town-planning schemes beyond Article I. of the Regulations, and of requiring all subsequent notices to be by public advertisement only.

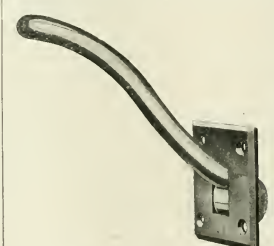
THE PATENT ASYLUM "SAFETY" HOOK

The provision of coat and wardrobe hooks has been a source of anxiety in asylums for the insane, owing to their affording patients



Hat Hook.—Pulled Down to Allow Cord to Slip Off.

of suicidal tendencies easy facilities for hanging themselves. It is a common practice to screw the hooks on with short and slight



Hat Hook.—In Ordinary Position for Use.

screws which tear out of the rails when a strain is put upon them.

The patent asylum "safety" hook has been devised by Mr. Walter Allott, of 8, Swinburne grove, Withington, Manchester, to



Wardrobe Hook.

give permanent convenience for hanging clothes, hats, etc., and prevent the risk of suicide. This is effected by a strong spring attached to the hook, which will support the weight of ordinary clothing, but would give

way under the weight of the body of a patient, and allow the cord or other means of suspension to slip off the hook. A guard is attached to prevent the hook being wedged up to stop the working of the spring.

The accompanying illustrations show the smaller hook for wardrobes and hanging cupboards (which can be made of varying sizes to suit any requirement), and the large hook for hats, one illustration of which shows the hook in position for use, and the other, when pulled down, affording no hold for a cord. The same principle has been applied to the brackets supporting rods for window-curtains, portières, etc., which can be supplied with wood backing ready for fixing.

The hooks are made by Colledge and Bridgen, of the Midland Lock Works, Wolverhampton.

Building Intelligence.

NOTTINGHAM.—An addition is being made to the Mother Church of Nottingham. This is an aisle to the chancel, which will provide both a side chapel and an organ-chamber. The present chancel is unworthy architecturally of the nave, and when it was proposed in 1881 that St. Mary's should be the Cathedral of the new Diocese of Southwell it was suggested that the chancel should be rebuilt. The present work was first designed by the late Mr. Hodgson Fowler, but on his death Mr. Temple Moore was called in, and he adopted in the main (though with some minor modifications) Mr. Hodgson Fowler's plans. The foundation-stone of the new aisle is to be laid to-day.

STONE.—The new St. Michael's Hall, in Lichfield-road, Stone, was opened on Thursday week. The contractors are Messrs. Tomkinson and Betteley, of Longton, and the architect Mr. J. H. Redman, of Stone. The building, which is to be used for parochial purposes, consists of an entrance hall; parish hall, 42ft. by 25ft., with ante-room and cloakroom adjoining; a reading-room, 25ft. by 19ft.; and a billiard-room, with accommodation for two tables. Underneath is a cellar containing the heating apparatus and cooking appliances. The walls are of brick, with pebble-dash outside. The total cost will be about £1,000.

TANFIELD LEA.—The foundation-stone ceremony in connection with the new Primitive Methodist Church and Sunday-school, Tanfield Lea, Co. Durham, took place on Saturday. The buildings face the main road between Stanley and Tantobie, and the church is to seat 300 and the school 350. The design is Gothic, and the front of the church will have a large tracery window, glazed with leaded lights. The total cost will be over £2,200, and Messrs. Cook Bros., Blyth, are the contractors; and the architect is Mr. J. W. F. Phillipson, M.S.A., Grainger-street, Newcastle.

Among the members of council elected at the annual meeting of the Society of Antiquaries on St. George's Day were Mr. E. S. Prior, F.R.I.B.A., and Mr. H. Thackeray Turner, F.R.I.B.A.

The following pictures have lately been added to the National Gallery:—"Portrait of a Man," by Jan Levens (1607-1674), No. 2,864, hung in Room XIII.; and "Plucking the Turkey," by Henry Walton (1746-1813), No. 2,870, hung in Room XXI. The following picture has been bought by Mrs. Drew to the Tate Gallery at Millbank, and is placed in Room XX.:—"Portrait of Dorothy Drew" (now Mrs. Woodbine Parish), by Sir Edward C. Burne-Jones.

The Lancashire and Cheshire Centre of the Roads Improvement Association has devoted considerable attention to the scheme laid before it for the construction of a new road from Liverpool to Preston, via Southport. It is proposed that the new road shall begin at Kirkdale, and pass through Litherland, Buckley, Hill, Thornton, Ince Blundell, and Moss Bridge to Southport. From Southport, it is suggested, the new road should travel through Crossens Bank, Heskest Bank, Hutton, and Penwortham to Preston. Such a road would shorten the distance between Southport and Preston by five miles.

Our Illustrations.

THE CHURCH OF ST. LAURENT, LE PUY.

The Church of St. Laurent, once attached to the Monastery of the Dominicans, stands in the lower part of the old town of Le Puy, not far from the extraordinary pilgrimage church of St. Michael, which is built on the top of a fragment of rock several hundred feet high. The exterior of St. Laurent is singularly unattractive, but internally it is very impressive, and from an artistic point of view

may be said to compare favourably with the cathedral, which chills the artist's eye by its cold severity. The church dates chiefly from the 11th century, and contains the tomb of Du Guesclin with a very interesting statue of the hero. Le Puy itself is chiefly interesting to the architect by reason of its churches. The town, except for its remarkable position upon the side of a steep hill in the middle of an amphitheatre of mountains, has not much of interest in its domestic architecture; but other places near it, Polignac and Espaly, for instance, are extremely picturesque, and the sketcher will find much to occupy him in and near them.

Our illustration is from a beautiful water-colour drawing by Mr. A. Wallace Rimington, A.R.E., R.B.A.

THE WEIR COTTAGE HOSPITAL.

SELECTED DESIGN.

This building is to be erected on the site of Nos. 15 and 17, Grove-road, Clapham Park, S.W., and will provide accommodation for thirty in-patients and for a daily attendance of fifty out-patients, with a dispensary, operating-room, X-ray department, etc. The main front building to Grove-road, will be of two stories, providing accommodation for the resident staff on the first floor, over the administrative and out-patients departments. The remainder of the building will be of one story and arranged for future extension by the addition of another story to the ward blocks. The buildings will be constructed of "fireproof" materials throughout, faced with red pressed bricks and Portland-stone dressings. The architect is Mr. R. J. Thomson, F.R.I.B.A., of 49, Hill-road, Wimbledon, whose design was selected in competition.

"HORSLEYDOWN," KINGSDOWN, NEAR WALMER, KENT.

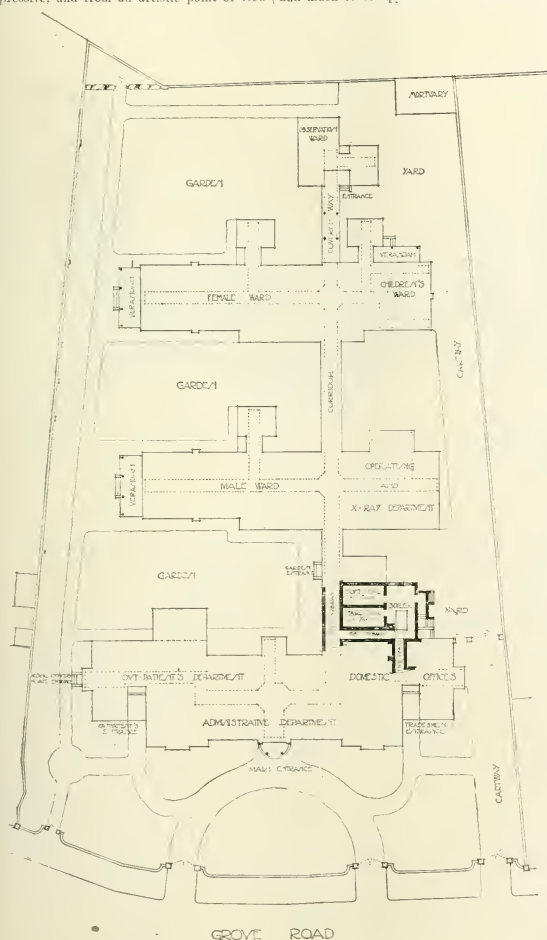
With a considerable fall from the seashore frontage, the site on which this seaside house has been recently built consists entirely of shingle, the sunk garden to the rear being made up with a good depth of chalk covered with 2ft. of loam. This fall in the land necessitated the back part of the building being made a floor lower than the front towards the sea. All the rooms above the upper ground line have a sea view. With this intention the façade is practically all windows, and to mask this stipulated arrangement, keeping in mind architectural good effect and likewise to gain additional convenience, the lay-out is diversified so that a verandah occupies the centre of the ground-floor stage, while balconies occur right and left on the first-floor level. A seascape room, with an open balcony to it, is provided in the gabled roof on the second floor. There are nine bedrooms, besides the two reception-rooms, the larger of the pair being the "family room," which is furnished in old oak. A lift by Waygood for service connects the kitchen on the lower ground level with all the floors. Cliff's salt-glazed bricks are used for the facings towards the sea, and withstand the roughest weather. The external woodwork to the balconies, etc., is in teak. Iron casements are used, with quarry glazing of white glass and lin. lead frames. The roofs and upper walls are tiled. The staircase is of oak, and it is well screened from the front entrance. The builder was Mr. Alfred W. Thompson, of Lower Walmer. This plate is reproduced from a drawing which forms one of the new subjects in the second edition of "Modern Cottage Architecture," which Mr. B. T. Batford is forthwith publishing, under the editorship of the architect of this seaside house, Mr. Maurice B. Adams, F.R.I.B.A. The volume is largely illustrated from photographs, showing recent work done by leading architects, and we may give some further examples from its pages, for they are thoroughly representative, with plenty of plans, and other useful details.

Mr. P. J. Bryan, of Edinburgh, has been appointed surveyor and sanitary inspector to the Innerleithen Town Council.

A new school for the Cockpen School Board, erected in Polton-street, Bonnyrigg, from plans by Mr. James Gray, architect, Bonnyrigg, was opened last Friday. The cost was £35,000.

The foundation-stone of a United Methodist chapel was laid at Preston, near Paignon, on Saturday. The permanent building replaces an iron structure on the same site, the architect being Mr. Matthews, of Paignon.

Mr. John Muncester Sadler, who retired in 1894 from the city engineer's department of the Liverpool Corporation after forty-eight years' service, died on Friday at his residence, "Tyhurst," Maghull, in his 90th year. He was employed on the laying out of Sefton Park, the sewerage of Wavertree district, and other important works in the city.



BLOCK AND BASEMENT PLAN

THE WEIR COTTAGE HOSPITAL, BALHAM.
Mr. R. J. Thomson, F.R.I.B.A., Architect.



"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON.—BUILDINGS ADAPTED FROM OLD EXAMPLES: LEDBURY MARKET HALL. By Mr. E. L. LUTYENS, F.R.I.B.A., Architect.

"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON.

Mr. E. L. Lutyens, F.R.I.B.A., is the architect engaged in superintending and designing the historic grouping of old typical buildings illustrative of the period of Shakespeare for this forthcoming exhibition, and, laid out as the scheme will be with due regard to the Old English ideas of street formation, and fittingly contrived also to meet the exigencies of a modern display in a series of modern shops to be visited by thousands of people by night and by day. The collection will include reduced copies of some of the larger mansion-houses of Elizabeth's time, and every care is being observed to render these replicas well worthy of the occasion. We give two sketches, which serve to indicate what is being erected. The examples chosen are taken from the Stables, Ashby St. Leger, Warwick, and Dixter, Northbourne, Kent. The third subject is the famous timber market hall at Ledbury, Herefordshire.

Next the entrance in Warwick road an Elizabethan tower with an old Norman-towered church will form the attraction, with representations of the Porch House, Potterne; Trinity College fountain, Coventry almshouses, Apeltorpe, Holborn old houses, Exeter Guildhall, Salisbury Cross, Quarhy Old Hall, Huddersfield; St. Cross, near Winchester, Dixter Hall, and an adaptation of Shakespeare's House at Stratford

on Avon. The lake is to more or less represent Plymouth Harbour, and enclosed for inspection there is "The Revenge," Drake's famous galleon, manned by old naval reserve men in the dress of the period. It was Mr. Lutyens's idea, we understand, to have the ship moving up and down, motioned by the waves, but this part of the programme was abandoned, for the leverage would be very considerable, owing, for one thing, to the great height of the masts and rigging. The old hostelry under the sign of the Hare and Talbot is to be provided, and roast pig is to be served to the public.

The City of London, which, for years past, has paid land-tax for the houses which existed on Old London Bridge, has decided to redeem the same. The amount is about £375 per annum, and the City will be able to secure redemption by payment of a lump sum of £11,000 or so.

Twelve additional cottages are in course of erection at the Middlesex County Asylum, Napsbury, St. Albans, for the county council of Middlesex, from plans by Mr. H. T. Wakelam, M.Inst.C.E., M.S.A., the county architect. The cost works out at £210 per cottage. Mr. Pitkin, of St. Albans, is the builder.

According to a writer in the *Florist's Exchange*, "lead wood," which is metallic lead cut in fine shreds about the thickness of ordinary twine, is an excellent material to use for stopping leaks in pipes. The lead wood is caulked in by means of an ordinary chisel, and may be employed when the water is on or off.

THE CONSTRUCTION OF LOMBARD AND GOTHIC VAULTS.*

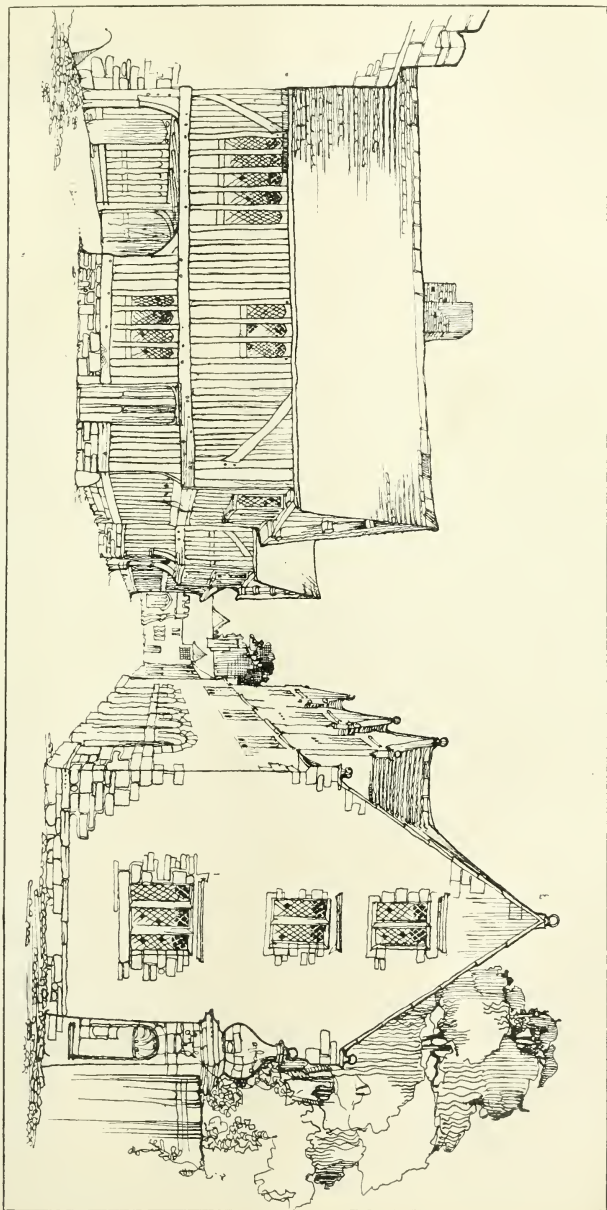
This work, which appears to have been published in America in November last, has now reached us. It will be remembered that Mr. William H. Goodyear, the Curator of the Department of Fine Arts at the Brooklyn Institute Museum, was good enough to send us proofs of a review which he was contributing to the *American Architect*. That review we published in our issue of March 8 last.

The work itself has now reached us, and many readers may like to know it. We do not propose to say more than that Mr. Porter seems to have spared no pains to establish his theory that the rib-vault was devised to do without timber centering. It may have been so, of course; but whether Mr. Porter's disposal of the more generally accepted idea that the ribs concentrated and took up the thrusts of the intermediate vaulting, and were, therefore, devised as a means of concentrating thrusts, is as complete as he thinks, readers must decide.

On Sunday, Bishop Hicks, of Lincoln, dedicated a memorial chapel to the late Bishop King at St. Martin's Church, Lincoln, and a memorial window to the memory of the late Ellen Stancliffe, the daughter of the vicar of the church.

The Construction of Lombard and Gothic Vaults. By ARTHUR KINGSLY PORTER. London: Henry Frowde, Oxford University Press. 8s. 6d.

"SHAKESPEARE'S ENGLAND" EXHIBITION, KENSINGTON—BUILDINGS ADAPTED FROM OLD EXAMPLES AT ASHEY, ST. LEGBERS, WANWICK, AND
DIXTER, NORTHBOURNE. RENT. BY MR. E. L. LITVENS, F.R.I.B.A., ARCHT.



PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general business meeting of the Associate Section of the Edinburgh Architectural Association was held at 117, George-street, Edinburgh, on the 18th inst. The secretary's report, which was unanimously approved, stated that the session had been an exceptionally successful one. Mr. Sydney D. Kitson was elected chairman for the ensuing year, and Mr. T. Aikman Swan, A.R.I.B.A., vice-chairman.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.—A general business meeting of the society was held on Thursday, April 18, 1912. Mr. Sydney D. Kitson, M.A., F.R.I.B.A., in the chair. The hon. secretary, Mr. Wm. Whitehead, A.R.I.B.A., read the report of the council for the past year. The total membership of the society on March 31, 1912, comprised of 32 hon. members, 75 members, and 76 associate members. The society has been unfortunate in losing the services of Mr. Ralph W. Thorp, A.R.I.B.A., late hon. secretary; Mr. P. Musto, A.R.I.B.A., late vice-president; Mr. H. Ascoug Chapman, F.R.I.B.A., member of council; and Mr. J. H. Farrar, associate member of council, all these gentlemen having left the district during the session. The hon. treasurer, Mr. R. Fielding Farrar, presented a financial statement for the year, showing a balance of £57 19s. 1d. The report and balance-sheet were adopted, on the motion of Mr. J. E. Braithwaite, A.R.I.B.A., seconded by Mr. Moreton. The following officers were elected to serve on the council for the session:—President: Mr. A. E. Kirk, A.R.I.B.A., Vice-president: Mr. G. F. Bowman and Mr. J. E. Walsh, Hon. treasurer: Mr. R. Fielding Farrar, A.R.I.B.A., Hon. librarian: Mr. W. Peel Schofield, A.R.I.B.A., Hon. secretary: Mr. Wm. Whitehead, A.R.I.B.A. Members of council: Mr. W. J. Morely, F.R.I.B.A.; Mr. C. B. Howdill, A.R.I.B.A.; Mr. G. W. Smithson, A.R.I.B.A.; Mr. J. C. Procter, A.R.I.B.A.; Mr. G. F. Comer, A.R.I.B.A.; and Mr. Douglas Bowman, associate member. A hearty vote of thanks was accorded Mr. Sydney D. Kitson on his retirement from the president's chair. He had worked hard during his term of office, and with a spirit of comradeship that had been pleasant for everybody.

LIVERPOOL ARCHITECTURAL SOCIETY.—The annual meeting of the members of this society was held at Liverpool on Monday evening, Mr. Arnold Thorneley, who is retiring president, in the chair. It was reported that the membership consisted of fifty-three fellows and seventy-five associates, an increase of two associates, and that there were also three hon. fellows, eight hon. associates, and twenty-one students. The council expressed with regret the death of Mr. H. Blomfield Bagnall, who had been a member of the society for many years, and who had been president in 1888. The council had communicated with several of the bodies interested in the memorial to Sir Alfred Jones, the work of which had been placed in the hands of Sir George Frampton, R.A., urging the desirability of selecting a suitable site before the completion of the design, and of accelerating the laying-out of the Landing-stage approaches in a manner which would afford many excellent sites for monumental statuary. The following officers were elected:—President, G. Haswell Grayson; vice-presidents, E. P. Hinde and W. Glen Dobie; hon. secretaries, Gilbert Fraser and E. L. Bower; hon. auditors, John Woolfall and T. F. Shepherd. As unofficial members of the council there were elected:—J. Dod, T. E. Evans, C. H. Reilly, P. C. Thicknesse, Arnold Thorneley, W. E. Gillink, and R. B. Holt (fellows), and L. P. Aikman and F. E. G. Badger (associates). Thanks were accorded to the retiring president.

LONDON MASTER BUILDERS' ASSOCIATION.—A council meeting of the London Master Builders' Association was held in the Council Chamber, Koh-i-Noor House, King-way, W.C., on Thursday, April 18, when the president (Mr. James S. Holliday)

presided. The president reported that the special committee and the law and Parliamentary committee had met, and would, in due course, submit their reports to the council. Correspondence, relating to priced schedules with tenders, provisional sums in quantities, etc., was read and instructions given. Messrs. Messers, Ltd., were elected an associate member of the association, and the following firms were nominated for membership:—J. Messers, J. J. Carter, Ltd., as ordinary member; Messrs. Bovis, Ltd., as ordinary member; 3, Mr. J. B. Smith, as associate member.

SURREY ARCHEOLOGICAL SOCIETY.—The Surrey Archaeological Society held its annual meeting at Guildford last Saturday, Alderman Smallpiece in the chair. The council reported that the general question of the preservation of threatened antiquities had been before it in many forms during the past year. Quite the most serious danger was that which threatened St. George's Hill at Weybridge. Building operations at one time threatened the most interesting features of the hill, but thanks to the constant efforts of the Society's local secretary, Dr. Gardner, and to the ready acquiescence of the new owner, the worst dangers had been averted. The threatened destruction of the old cottages at Guildford aroused the Surrey County Council, which had now elected a committee to consider the question of the preservation of Surrey antiquities. The Council of the Society has decided to compile a list, arranged under parishes, of all Surrey antiquities of importance. The Society numbers 491 members. The Earl of Onslow has accepted the post of vice-president in succession to his father.

Correspondence.

THE R.I.B.A. AND REGISTRATION.

To the Editor of the BUILDING NEWS.

SIR,—In reference to the letter from the Institute Members' Club which appeared in the Journal of the R.I.B.A. of the 13th inst., we should like to point out that the question of Registration, with which it deals, is one so profoundly affecting the welfare of the profession that it should not be allowed to die through the apathy or indifference of the responsible guardians of the trust and obligations imposed upon them by the general body of the profession. No doubt, we regret more than ourselves the futile efforts made by the R.I.B.A. to deal successfully with a great problem which is of vital interest to every practising architect. These futile efforts were the result of an adoption of a foolish compromise which satisfied neither side, and subsequent events have shown that the compact made five years ago was an unworkable one. In these circumstances, we now feel free to take an independent course, and to definitely and finally throw over our allegiance to the policy of compromise then forced upon us, with which we have never pretended to be really in sympathy.

We consider that the R.I.B.A. scheme, even with any considerable modification of its details, could never become law, for it is ludicrous to suppose that any Government would permit the Institute to become the sole examining body for granting diplomas, or allow it to have sole jurisdiction over the profession of which it forms so small a part. For instance, the University of Cambridge has inaugurated a School of Architecture, and instituted examinations on a higher and more comprehensive scale than those of the Institute. Is it likely that this ancient seat of learning, one of the two oldest educational centres in the Kingdom, with its two Parliamentary representatives, would submit for one moment to the proposed dictatorship of the Institute?

Again, is it reasonable to assume that the University of Oxford, which will probably follow the sister University in founding a course of study in architecture, with its prestige, power, and influence behind it, will stultify a more than probable future

educational extension by passively submitting to the philandering scheme of the Institute?

Surely, having regard to the fact that the policy of the R.I.B.A. is bound to bring about the active opposition of the distinguished Parliamentary representatives of these Universities, whose views on educational questions would be likely to be accepted by Parliament almost without question, there would be no chance of the Institute's Bill becoming law, unless the equitable recognition of these and other educational bodies were freely accorded.

As a melancholy example of the short-sighted policy of the Board of Architectural Education, whose action was subsequently confirmed by the Council, we may quote the case of Cambridge University.

Certain universities of recent formation, and without Parliamentary representatives, which have adopted the R.I.B.A. regulations in regard to architectural study, were regarded as "recognised schools," and, as such, obtained certain privileges—i.e., exemption from the Intermediate Examination, etc., whereas Cambridge, with a higher standard of education, and powerful influence in both Houses, was not accorded a similar exemption. The absurdity of this exclusion is more apparent when certain other facts are taken into consideration, such as the privileges accorded to Liverpool and Manchester, which were granted because these universities taught "Design," whereas Cambridge does not pretend to do so.

The reason for excluding Cambridge is not quite clear, inasmuch as "Design is only an optional subject in the Intermediate Examination, and the inclusion of this subject becomes absolutely chaotic when it is remembered that the leading opponents to Registration have declared over and over again that "Design" cannot be taught, and therefore, we should have thought, could not become a subject for examination.

However, the question of education is one of far too serious a nature to be allowed to be treated thus lightly and illogically; consequently, as a preliminary proceeding, we think the Institute would be well advised to approach the older Universities on the subject of architectural education in a far more friendly and conciliatory spirit than it has yet shown, with a view to eliciting their guidance and support. Further, it is folly for the Institute to imagine that it has the remotest chance of securing Parliamentary recognition for its members without due assurance that its proposals will not encounter active opposition of the Surveyors' and Engineers' Institutions, to say nothing of the many borough and county councils, all of whose bodies will assuredly have to be placated.

In short, the Institute must remember that it is acting for the welfare of a large profession, of which it forms only a part, and not for the individual glorification of its members.

There is much spade-work to be done by the Institute before any Bill can be drafted, and if the R.I.B.A. would condescend to set about this preliminary work instead of forming itself into committees to draft Bills which have no earthly chance of ever becoming the law of the land, the Council would be embarking on a course of profitable work. The continuance of its policy of spending its time and irritating its more serious members in futile efforts to obtain Parliamentary recognition without first preparing the ground seems to us to be nothing more or less than trifling with a stupendous problem which has yet to be solved.—We are, etc.,

A. W. S. CROSS.

GEORGE HUBBARD.

Grand Hotel Londres, Royal Deux Tours, Verona, April 21.

All Saints' Church, South Acton, is about to be renovated structurally, including the west front, towers, and spire, which are to be restored under the supervision of Mr. Maurice B. Adams, F.R.I.B.A., the contractors being Messrs. T. H. Adamson and Sons, builders, of Putney, S.W.

CURRENTE CALAMO.

Some of the dailies are again piling up the agony about the "coming strike in the building trade." We have said again and again during the last six months that no strike is likely, and we are glad to see one of the most sensible of the Labour leaders is of the same opinion. Mr. F. Chandler, the general secretary of the Amalgamated Society of Carpenters and Joiners—the largest organisation concerned—speaking to a representative of the *Manchester Guardian* on Tuesday, said that the question of amalgamation or federation of the various trade unions connected with the building trade had been under consideration for some time. The outcome of a meeting held recently was the appointment of a committee to draw up a scheme for submission to a further conference, which will be held about a month hence. This movement, however, was not inspired by any aggressive idea of a national strike for enforcing the demands of the workers as an ultimate object.

That is what we explained last December. There is a growing tendency on the part of all trade organisations having mutual interests to combine, and the building trade workers have no other present motive than to strengthen their forces from a bargaining point of view. Whether a national movement to improve the conditions of all classes of workers in the industry will be entered upon if the amalgamation project should be attained remains to be seen. The fact that the Carpenters' and Joiners' Society is at present concerning itself solely with an effort to secure increased wages for its own members shows clearly enough that no such "all grades" movement is on foot. Mr. Chandler stated on Tuesday that satisfactory progress in this direction is being made by the Carpenters and Joiners. "In Manchester," he said, "the employers made an offer which our men did not think quite good enough, and they have responded by making a revised offer on which the men are going to ballot. In London, where the men are asking for a considerable advance in wages, the employers are quite reasonably disposed, and the question will, I think, be settled without difficulty. In the country generally we may have one or two little disputes, but the employers as a whole are meeting us fairly, and I certainly do not at present anticipate any widespread trouble." Nor do we.

We have not seen the estate, but certainly the accounts of the inauguration of the new "Garden Village" at Knebworth last Saturday indicate more businesslike conditions than have prevailed in connection with some of the other "ideal" ventures. About a thousand acres are to be developed. The houses are from designs and plans prepared by Mr. Edwin Lutyens, F.R.I.B.A., and are to be carried out in detail by Messrs. Pepler and Allen, F.S.I., A.R.I.B.A. The houses will be built and sold by the company at an inclusive price, and it is stated that not only artistic but good work is assured. An important feature of the scheme will be a co-partnership tenants' society, which is arranging to build cottages surrounded by ample garden space, and to be let at 6s. 6d. and 6s. 6d. per week, according to the size. No cottage has less than three bedrooms, and bathrooms are insisted on in every case.

Two of "their staff" being Fellows of the Institute, there can be no possible doubt whatever, of course, of the fact our Indian contemporary, *Indian Engineering*, points out in the concluding sentence of a paragraph in its issue of March 30, just to hand:—

"We have received a little portfolio containing photographs of thirty-four important public buildings built by Messrs. Martin and Co., engineers and contractors, of this city. Many of them have also been designed by their own architect. The portfolio contains samples of every class of structure—offices, residences, factories, and churches—showing that this firm is at home in all the forms of architecture practised in this country, two of their staff, in fact, being Fellows of the Royal Institute of British Architects. It is evident Messrs. Martin and Co. are in a position to carry out easily both the designing and erection of important buildings in any part of India—a fact which Indian chiefs in remote places may take a note of."

Friendly relations of this sort between the architect and the contractor, if not ideal, no doubt save a deal of bother, and enable the latter to "carry out easily the designing" needed by "Indian chiefs" and others!

It looks as if the Government means to hand us over body and breeches to the tender mercies of the Railway Companies. The memorandum published on Tuesday states the objects which the Bill has in view, but fails altogether to show that the Bill provides a satisfactory method of attaining them. "The Government will propose to Parliament next session legislation providing that an increase in the cost of labour due to an improvement of conditions for the staff would be a valid justification for a reasonable general increase of charges within the legal maxima, if challenged under the Act of 1894." What is meant by a "reasonable" increase? The companies say, "We are paying our servants more; you must therefore pay us proportionately more." The public reply, "Certainly; we are willing to pay more, but as you have all the details of the increased payments to your servants, besides the knowledge of all your other expenditure, show us that your increased charge to us is reasonable." Or, rather, that is what the public should be able to say, if it believes that any increases are unreasonable, and that is what, under the Railway and Canal Traffic Act, 1894, it has the power to say to-day. But under the new Bill that power will be gone, for, if the Bill be passed unamended, the companies will then say to the public:—"We are the only people who have the means of showing that these increased charges which you now have to pay are reasonable or unreasonable; but if you don't like them, you can go to the Railway and Canal Commissioners and try to prove that they are unreasonable."

A more complete surrender of public rights is unimaginable. Hundreds of our own readers know by bitter experience already acquired what will follow if the companies are to be practically the sole judges of "reasonableness." And, remember, this applies to every form of increased rate—to the increase for which the consent of the Railway Commission has to be obtained, to an increase already in force of which complaint may be made, and to an increase of a rate which has been experimentally reduced. The details of their increases in wages should alone enable the companies to justify the increased rates which they propose, and it is contrary to the public interest to relieve them of their present obligations. The Railways Bill should only give the companies all that Government has promised without saddling

the public with the excessive charges to which it will shortly be exposed with no hope of remedy. More than anything else railway rates already cripple many of our own industries: are they to be allowed to extinguish them, while the foreigner is favoured at our expense?

The Works Committee of the Holborn Borough Council has recommended that High Holborn should be paved with granite sets, having come to the conclusion that to secure a durable paving to bear the constant vehicular traffic it is necessary to rule out asphalt and wood-paving. We are not surprised; but if other authorities follow suit, the yearly increasing wear and tear of our nerves will be terribly intensified. Those who have watched the effect of the motor-bus traffic on wood pavements, which even in streets where there is comparatively little traffic seem unable to hold together in this searchingly dry weather, will admit that, at any rate, the tram-car doesn't tear up our roads like its rival and the rest of the motor vehicles. Properly laid, a good asphalt like Val de Travers—no rubbish of the sort some authorities seem content with—will stand any traffic that ought to be allowed on the roads. It is, moreover, dustless, easily cleaned, and sanitary, while wood pavement is neither. Our suggestion, anyhow, is that local authorities should seriously consider the possibilities of compelling motor vehicles to use wheels that do not tear up the roads, before returning to granite sets.

The Pope, after all, did not have the pleasure of hearing the bells of the restored Campanile of St. Mark rung yesterday at its inauguration. As the Pope bore the expense of recasting them, the idea of connecting them by wires with the Vatican occurred to him. He caused his desire to be made known to the "Minister of Posts and Telegraphs," who at once expressed his willingness to gratify him. The bells are five in number, named respectively the Marangona (which rang the arsenal carpenters to and from their work), the Nona, the Pregadi, the Trotiera, and the Renghiera, and the Minister intimated that he, by means of five wires, would connect them with the telephone in the Pope's room. The Pope was delighted. But he had counted without his host. When the Cardinals of the Curia heard of it they objected to the Vatican accepting a courtesy from the Italian Government. This put the Pope in a rather awkward position, so his medical adviser has certified that, as he is not in a good state of health, the excitement that would have been caused by the bell-ringing might have had evil consequences. The new campanile is a facsimile of the old. It retains all its old features, inclusive of the celebrated loggia, with all its minute sculptured details in marble and bronze. At the same time the architects have, we are assured, taken good care to make it more stable than its precursor. The old campanile was structurally defective, both in regard to its fundamental support and the materials employed.

In the Spring a lady's fancy lightly labours as with love at the annual house-cleaning. One of her, encouraged by her mother-in-law, went to the stores. "Do you keep all kinds of paints?" "Yes, ma'am." "Do you have all colours?" she continued. "Yes, ma'am." "Then," said she, "I want a quart of green paint with a white stripe in

IN RE MR. E. A. RUNTZ, F.R.I.B.A. The statutory first meeting was held on Wednesday of the creditors of Mr. Ernest Augustus Runtz of Victoria street, Westminster, architect and surveyor, who filed his own petition on the 31st inst. Mr. E. S. Gray Official Receiver, presided. The debtor stated that for some twenty years he acted as a director of the Birkbeck Bank, but resigned about 1908. His business of architect and surveyor was very successful until 1903, but had since fallen away in consequence of recent legislation. He had also lost money by the failure of the Law Guarantee Trust and Accident Society, Limited. A statement of the

debtor's affairs showed liabilities £8,387 15s. 2d., of which £3,854 0s. 6d. was expected to rank, and assets valued at £305 5s. 5d. An order of adjudication in bankruptcy had already been issued, and the case was left in the department of the Official Receiver.

Our Office Table.

The General Board of Studies of the University of Cambridge recommend that a Board of Architectural Studies be established in the University. It is proposed that the board should consist of the Vice-Chancellor, the Disney Professor of Archaeology, the Slade Professor of Fine Art, the Professor of Mechanism and Applied Mechanics, the Reader in Classical Archaeology, four members of the Senate elected by the Senate on the nomination of the Council, each of whom should serve for four years, together with two additional members nominated by the board in the event of election. The duty of the board will be to organise the teaching of architectural subjects in the University, to draw up lecture lists for inclusion in the lists of lectures published by the General Board of Studies, and to admit students to courses of research in architecture.

The King has expressed his regret that he cannot visit Portishead next month, when the chapel of the National Nautical School is to be dedicated by the Bishop of Bath and Wells. He will be represented by H.S.M. Prince Louis of Battenberg, who will inspect the school and give away the prizes to the boys. H.R.H. Princess Henry of Battenberg laid the foundation stone of the school buildings some years ago, and H.R.H. Princess Christian visited Portishead when the school was opened. The school is beautifully situated on the shore of the Bristol Channel. The chapel is an art and craft design of Mr. Edward Gabriel (Edmondson and Gabriel), who also designed the chapel which is now nearing completion. Messrs. Cowen and Sons, of Bristol, were the contractors for the school buildings, and Messrs. Samuel Harent and Sons for the chapel. H.S.M. Prince Louis of Battenberg has fixed the date for his visit on May 14.

The Archdeacon of Halifax (the Ven. W. Foxley Norris), in his visitation charge, spoke strongly on the subject of church embellishments. He said that stained glass, panelling, and other carved or carved-out woodwork, and stained glass windows. He said: "I have no hesitation in prophesying that strenuous, and probably ineffectual, efforts will be made in the next generation to get rid of much of the glass that is being so lavishly and thoughtlessly put in at the present time. It seems to be entirely forgotten that working in stained-glass is an art, and that it is attempted without disaster by trained artists, and is necessarily very costly. There are very few artists in stained glass, and they well know the limitations and the exceeding difficulty of their art. But the demand is general. A supply—of a sort—has arisen to meet it, and no cheap, poor stuff is turned out so much as a square foot of dealers in all sorts of ecclesiastical commodities, who find that it is necessary to add a stained glass department to the rest of their stores, and I do not blame them. But the designs sent in are so deplorably bad in drawing and in general conception that criticism is difficult. There is really no regard whatever paid to the architecture of the church or to the conditions of the atmosphere. I have no pause to offer, but I do entreat those in authority in the parishes first to pause and consider; secondly, if they must give way to the coloured-window demand, to consult their own good taste and judgment and to give the work to a recognised artist; and thirdly, to remember that it is the most costly kind of work, and that they must not think of it unless they have plenty of money to deal with."

The programme for the International Housing Congress, to be held in Amsterdam in 1913, has just been adopted by the permanent committee at Brussels. It will include

town planning, the housing of working classes, the sanitation of congested areas, etc. One of the most interesting features of the Congress will be the collection of information concerning results obtained in various countries from experience in municipal housing. The idea emanated from the French delegates, and it will be interesting to see, as the result of the collection of this information, how far there is truth in the charge which is made by some that municipal housing tends to kill private enterprise. On this point the Ebbw Vale Company recently appealed to the urban district council for the provision of further houses for the accommodation of workers in new industries, on the ground that although under the company's own schemes, within twelve or fourteen years, 1,500 houses had been erected, the intervention of the district council, which had built houses of its own, had so diminished the value of housing accommodation that private enterprise had been stifled, and can no longer keep pace with the local authority, which can not only obtain cheaper capital, but enjoys many other advantages also.

A conference on the housing question was held under the auspices of the Southampton Trades Council, on Wednesday week, in the Ogle Hall. There was a large attendance, ninety-seven delegates being present, representing over fifty societies. Councillor G. A. Jones, who presided, declared that the Southampton housing scheme was a means of clearing away an area that was not of a very desirable character, and that the scheme had not been unduly expensive. Mr. Fred Kneze, secretary of the National Housing Council, pointed out the different ways by which the town council could clear away unsanitary property. If a house were picturesque but not fit to be lived in it might be demolished. If it was a danger to health it was a danger to life. After some discussion the following resolutions were unanimously adopted: "In view of the rapid development of estates that is taking place in the immediate neighbourhood, and having in mind the need for open spaces and roads (suitable for walking, etc.), it is considered desirable that the three local authorities, i.e., Southampton, South Stoneham, and Itchen, together with the Hants County Council—do confer together through their medical officers and surveyors to consider and report as to the best means of giving effect to the Town-Planning Act. Further, in view of the dearth of houses at a rent within the range of working classes, and the consequent crowding due to excessive rent, which covered two or three families to live in one house, we call upon the local authorities to adopt a constructive policy to include the acquisition of land and the erection thereon of suitable cottages." It was arranged to appoint a committee of fifteen, with power to add to their number, to give effect to the resolutions and to collect and publish facts on the subject.

At the recent town-planning conference at Wimbledon, reference was made to the heavy expenditure necessitated by eaving notices under the Town-Planning Act. The cost of these notices could be diminished very materially, says a writer in the *South Eastern Gazette*, if the results of the valuations which are made in connection with the land taxes could be made use of by the local authorities. There would seem to be no reason why it should be necessary for two or three sets of valuations to be made, or for information to be collected two or three times over by different bodies. An immense saving to the country would result from the one valuation and survey being made available for all purposes.

The town council of Denbigh recently presented to the Local Government an application to sanction a loan for £15,000 to build a new market, public hall, fire station, and municipal buildings. Since the application went up certain ratepayers organised opposition and have prepared a petition in favour of a modified scheme. The council have also received notice of opposition from the asylum authorities who are large ratepayers. The council have now in contemplation of their own initiative unanimously

passed a resolution withdrawing the application made for sanction to the loan of £15,000 for the buildings, and abandoning the whole scheme, the council having decided that they will not carry out a modified project, as they considered it would be inadequate.

Mr. Rudolph P. Miller, Superintendent of Buildings of the Borough of Manhattan, New York, has adopted a method of informing architects and contractors of any modifications of by-laws or rulings of the Building Department, which, if effectively maintained, will obviate much annoyance, delay, and expense. This plan consists of issuing numbered bulletins covering all rulings, modifications of the code, and approvals of new materials of construction, as soon as action is taken, posting these in a conspicuous position in the Department, and sending copies to publications conducted in the interests of architecture and building. Among the bulletins issued by Mr. Miller during the last few weeks are fresh rules affecting executing alterations to concert halls, floor partitions in fireproof buildings, the use of lime points, and hydrated lime in cement mortar, eccentric loads on columns, the employment of hollow tile building blocks, and the inspection of plasterwork. Mr. Miller's scheme might with advantage be followed by the leading municipal authorities in England, and would obviate much friction between architects and their clients and borough officials.

Dr. Edgar L. Hewitt, director of the American archaeology for the Archaeological Institute of America, is now on his way to Guatemala to complete his research work in the ruins of the Mayan City of Quirigua, which is believed to be the oldest city on the two American continents. Work has now been in progress about a year, and will continue until the entire city is laid bare. This will be the first ancient city in America to be entirely uncovered. The ruins are of great interest, have disclosed temple walls and sculptured monuments, bearing hieroglyphics. The reading of these hieroglyphics, it is hoped, will be the means of solving the problem of the origin of the race inhabiting the Americas.

A cement house put together with a screw-driver is a novelty which has been recently introduced in the United States. The system is designed for houses of a more or less temporary character, or for houses that are liable to be moved from one place to point, such as a temporary workshop or a private garage. The system consists of blocks of concrete in which has been buried a wire spiral with an opening in the cement to take a small bolt. These slabs are bolted in position over a metal or wooden frame, and when it is desired to move the structure the bolts may be readily removed from the screwdriver, and the whole structure transported, without any damage, to any desired spot.

The salary of Mr. Arthur J. Abbott, F.A.S.I., building surveyor and sanitary inspector to the East Barnet Valley Urban District Council, has been increased to £225, rising by £10 annually to £235.

A new city hall is about to be built at Cleveland, Ohio, from plans by Mr. J. Milton Dyer, of Cuyahoga Building, in that city. The cost is not to exceed £320,000 sterling. A group of hospital buildings will also be erected in Cleveland from the designs of Mr. Myron P. Moore, of the same city, the estimated outlay being £280,000 sterling.

The Canadian Northern Railroad are entering upon a heavy construction programme this season. The year's work will include the opening up of 1,003 miles of new road. Nearly 14,000 men are at present engaged by the company, and later on, this number will be augmented to 25,000. Next year the work will be even more extensive. One of the items for 1913 is the completion of the transcontinental line from Montreal to Vancouver. To complete the Ottawa-Montreal section, the company will build this year, from Montreal to Hawkesbury, a stretch of fifty-eight miles. The plans for the stations on the British Columbia section of the railway are being prepared by Mr. F. M. Rattenbury, architect, of Victoria, B.C.

LATEST PRICES.

| TIMBER. | | | |
|---|--------------------------------|-----------------------|----------|
| CONVENTIONAL. | | | |
| Per St. Petersburg Standard (100—12ft. by 14in. by 11in.) | 1st quality | 24 0 0 | 24 0 0 |
| Yellow Pine Deals, Quoted | 2nd | 20 0 0 | 20 0 0 |
| " " | 3rd | 18 0 0 | 18 0 0 |
| " " | 1st quality | 4 0 0 | 11 0 0 |
| " " | 2nd | 3 6 0 | 8 10 0 |
| " " | 3rd | 3 0 0 | 7 0 0 |
| " " | 1st quality | 20 10 0 | 21 10 0 |
| " " | 2nd | 16 0 0 | 17 0 0 |
| " " | 3rd | 11 0 0 | 12 0 0 |
| " " | 1st quality | 16 0 0 | 17 0 0 |
| " " | 2nd | 13 0 0 | 14 10 0 |
| " " | 3rd | 10 0 0 | 11 0 0 |
| " " | 1st quality | 10 0 0 | 17 0 0 |
| " " | 2nd | 9 10 0 | 12 0 0 |
| " " | 3rd | 8 10 0 | 10 0 0 |
| " " | 1st and 2nd quality | 9 0 0 | 9 6 0 |
| " " | 2nd and 3rd quality mixed | 8 5 0 | 8 10 0 |
| " " | Red Planed, 1st quality | 11 5 0 | 11 10 0 |
| " " | Pitch Pine: Prime | 17 0 0 | 20 0 0 |
| " " | Second | 8 10 0 | 12 0 0 |
| " " | Lignum Vite | Per 100 ft. by 14 in. | |
| " " | Yellow Pine Loge (waney board) | 0 1 6 0 | 0 1 6 0 |
| " " | Pitch Pine Loge | 0 2 8 0 | 0 4 0 0 |
| " " | Sirch: Quebec Loge | 0 1 0 0 | 0 8 0 0 |
| " " | Oak: Westchester Wagon | 0 1 0 0 | 0 8 0 0 |
| " " | Mahogany: Gaboon | 0 6 12 0 | 0 6 12 0 |

| VARNISHES, &c. | | Per gallon |
|--|--|------------|
| Fine Pale Oak Varnish | | £0 8 |
| Pale Copal Oil | | 0 12 |
| Superfine Pale Elastic | | 0 12 |
| Extra Hard Church Oak | | 0 12 |
| Superfine Hard-drying Oak, for seats of churches | | 0 12 |
| Superfine Hard-drying Elm | | 0 12 |
| Superfine Pale Elastic Carriage | | 0 18 |
| Fine Pale Maple | | 0 18 |
| Finest Pale Varnish | | 0 18 |
| Extra Pale French Oil | | 1 0 |
| Extrapolished Varnish | | 1 0 |
| White Copal Enamelled | | 1 12 |
| Extra Copal Paper | | 1 12 |
| Best Japan Gold Size | | 0 18 |
| Best Black Japan | | 0 18 |
| Oak and Mahogany Stain | | 0 8 |
| Greenish Black | | 0 10 |
| Berlin Black | | 0 10 |
| Knottling | | 0 10 |

WAGES MOVEMENTS

TRADE NOTES.

Messrs. John Warner and Sons, Ltd., of the Spitalfields Foundry, London, N.E., have in hand a new ring of six bells (tenor, 12½cwt.) for Childwall Church, Lanes; also the restoration of the bells at St. Peter's Church, Bournemouth.

CHIPS

The foundation-stones of the new Wesleyan Methodist Church at Uppermill, Saddleworth, were laid on Saturday. The building is to cost £4 000.

The third annual convention of the American Federation of Arts will be held at Washington, D.C., on May 9, 10, and 11, in the auditorium of the New National Museum.

The salary of Mr Arthur J. Abbott, building surveyor and sanitary inspector to the East Barnet Valley Urban District Council, has been increased to £225, rising by £10 annually to £255.

The salary of Mr. C. H. Riley, architect to the Bucks County Education Committee, is to be increased to £320 per annum, rising by annual increments of £20 to a maximum of £400.

Mr. W. H. Butler, chief assistant to the Merthyr Tydvil borough surveyor, has been appointed assistant surveyor and draughtsman by the Cumberland County Council at a salary of £150 rising to £250 per annum.

(ESTABLISHED 1838.)

DEPTFORD WHARF,
100 & 102 CREEK ROAD, DEPTFORD, S.E.

Registered Trade Mark,

POLONCEAU ASPHALTE

1714 Beech

Patent Asphalte and Felt Roofing

WHITE SILICA PAVING.

| VARNISHES, &c. | | Per gallon |
|--|--|------------|
| Fine Pale Oak Varnish | | £0 8 |
| Pale Copal Oil | | 0 12 |
| Superfine Pale Elastic | | 0 12 |
| Extra Hard Church Oak | | 0 12 |
| Superfine Hard-drying Oak, for seats of churches | | 0 12 |
| Superfine Hard-drying Elm | | 0 12 |
| Superfine Pale Elastic Carriage | | 0 18 |
| Fine Pale Maple | | 0 18 |
| Finest Pale Varnish | | 0 18 |
| Extra Pale French Oil | | 1 0 |
| Extrapolished Varnish | | 1 0 |
| White Copal Enamelled | | 1 12 |
| Extra Copal Paper | | 1 12 |
| Best Japan Gold Size | | 0 18 |
| Best Black Japan | | 0 18 |
| Oak and Mahogany Stain | | 0 8 |
| Greenish Black | | 0 10 |
| Berlin Black | | 0 10 |
| Knottling | | 0 10 |

STONE.*

| | | | | | |
|---|----------|----------|----------|---------------------|-----------|
| Stretchers and Headers— | | | | | |
| 8d. each | 8d. each | 8d. each | 8d. each | 8d. each | |
| Internal and External Angles— | | | | | |
| 12 each | 12 each | 12 each | 12 each | 12 each | |
| Cill Bulbules, Stretchers and Headers— | | | | | |
| 8d. each | 8d. each | 8d. each | 8d. each | 8d. each | |
| | | | | | Per 1,000 |
| Majorica or Soft Glazed Stretchers and Headers | | | | £21 17 | 6d. |
| Quoins and Bulbules— | | | | 26 | 17 6d. |
| Compass Bricks, circular and arch bricks | | | | | |
| of single radius 26 per 1,000 | | | | Not exceed- | |
| of double radius 26 per 1,000 | | | | ing 9in. x | |
| Camber arch brick, any kind or colour, | | | | 4 1/2in. x 2 1/2in. | |
| 16. 2d. each | | | | | |
| Stretchers cut for Closers and Nieked Double Headers, | | | | | |
| £1 per 1,000 extra. | | | | | |
| Carriage paid in full truck loads to | | | | | |

| | |
|-------------------------|-------------------------|
| London stations. | s. d. |
| Wharfedale and Est Sand | 7 0 per yard, delivered |

| | | | | | |
|---------------------|-----|----|---|----|----|
| Thames Ballast..... | 6 6 | " | " | " | " |
| | s. | d. | " | s. | d. |

| | | | | | |
|--------------------------------|----|---|-------|---|-----------|
| Best Portland Cement | 31 | 0 | to 34 | 0 | delivered |
| Best Ground Blue Line Lime | 19 | 0 | — | — | " |
| Exclusive of charge for sacks. | | | | | |

| | | | | | |
|-----------------------|----|---------|----|----|-------------|
| | s. | d. | s. | d. | Per yard, |
| Grey Stone Lime | 13 | 6 to 11 | 0 | 0 | as ordered. |

Stourbridge Fireclay in sacks 27s. 0d. per ton at rly. str.

TILES.

| | | |
|-------------------------------|-------|-----------------------|
| | s. d. | Delivered |
| Plain red roofing tiles | 43 0 | per 1000 at rly. stn. |
| ..... | 2 7 | per doz. |

| | s. | d. | Delivered |
|------------------------------|----|----|-----------------------|
| Plain red roofing tiles..... | 43 | 0 | per 1000 at rly. sta. |
| Hip and Valley tiles..... | 3 | 7 | per doz. " " |
| Broseley tiles..... | 50 | 0 | per 1000 " " |
| Ornamental tiles..... | 53 | 6 | " " " " |

SLATES

| | | | | |
|--|----|-------------|----|----|
| Hip and Valley tiles..... | 60 | 0 per 1000 | .. | .. |
| Hip tiles..... | 60 | 0 per 1000 | .. | .. |
| Ornamental tiles..... | 53 | 6 | .. | .. |
| Hip and Valley tiles..... | 60 | 0 per doz. | .. | .. |
| Reason red, brown, or brindled do. (Peaks) | 67 | 0 per 1000 | .. | .. |
| Ornamental do..... | 60 | 0 | .. | .. |
| Hip tiles..... | 60 | 0 per doz. | .. | .. |
| Valley tiles..... | 3 | 0 | .. | .. |
| Selected "perfect" mod- tile—Plain tile (Peaks) | 46 | 0 per 1000 | .. | .. |
| Ornamental do..... | 48 | 6 | .. | .. |
| Hip tiles..... | 3 | 10 per doz. | .. | .. |
| Valley tiles..... | 3 | 4 | .. | .. |
| Rosemary" brand plain tiles..... | 48 | 0 per 1000 | .. | .. |
| Ornamental tiles..... | 50 | 0 | .. | .. |
| Hip tiles..... | 60 | 0 per doz. | .. | .. |
| Valley tiles..... | 3 | 8 | .. | .. |

BRICKS

| | | | | |
|-----------------------------|----|---|----------|-----|
| Staffordshire (Hanley) Reds | | | | |
| or Brindled tiles..... | 42 | 0 | per 1000 | " " |
| Hand-made sand-faced | 45 | 0 | " | " " |
| Hip tiles | 4 | 0 | per doz. | " " |

| | | | | | |
|--|----|---|----------|---|---|
| Valley tiles | 3 | 0 | " | " | " |
| "Hartshill" brand plain tiles, sand-faced | 50 | 0 | per 1000 | " | " |

| | | | | |
|---------------|----|---|----------|----|
| Presses | 47 | 6 | 30 | 30 |
| Ornamentos do | 50 | 0 | 30 | 30 |
| Misturas | 4 | 0 | per doz. | |

| | | | | |
|---------------------|----|---|----------|----|
| Pressed | 47 | 6 | 33 | 33 |
| Ornamental do | 50 | 0 | 33 | 33 |
| Hip tiles | 4 | 0 | per doz. | 33 |
| Valley tiles | 3 | 6 | 33 | 33 |

OILS.

| | | | |
|----------------------------------|----------|----|-------|
| Rapeseed, English pat's, per tan | £26 15 0 | to | £26 6 |
| Do., brown..... | 26 15 0 | " | 27 5 |

| | | | | | | |
|---------------------------------|-----|----|---|----|-----|----|
| Rapeseed, English pale, per ton | 228 | 15 | 0 | to | 228 | 6 |
| Do., brown..... | 28 | 15 | 0 | " | 27 | 6 |
| Cottonseed, refined..... | 29 | 0 | 0 | " | 30 | 0 |
| Olive, Spanish | 30 | 10 | 0 | " | 40 | 0 |
| Meal, pale | 21 | 0 | 0 | " | 21 | 10 |

| | | | | | |
|--------------------------|----|----|---|----|----|
| Cottonseed, refined..... | 29 | 0 | 0 | 30 | 0 |
| Olive, Spanish | 30 | 10 | 0 | 40 | 0 |
| Seal, pale | 21 | 0 | 0 | 21 | 10 |
| Cocoanut, Cochin..... | 46 | 0 | 0 | 46 | 10 |
| Do., Ceylon | 43 | 10 | 0 | 43 | 0 |
| Do., Mysore | 42 | 10 | 0 | 43 | 0 |

| | | | | | | | |
|-----------------------|----|-----|----|----|---|----|-------|
| Cocoanut, Cochin..... | 32 | ... | 48 | 0 | 0 | 32 | 48 10 |
| Do., Ceylon | 32 | ... | 42 | 10 | 0 | 32 | 43 0 |
| Do., Mauritius | 32 | ... | 42 | 10 | 0 | 32 | 43 0 |
| Palm, Lagoes | 19 | ... | 32 | 5 | 0 | 19 | 33 5 |
| Do., Nat Kernel | 31 | ... | 35 | 0 | 0 | 31 | 35 10 |

| | | | | | | | |
|----|-----------------------|----|---|---|---|----|----|
| 00 | Do, Salt Lagoon | 32 | 6 | 0 | 0 | 33 | 6 |
| 0 | Do, Salt Kernel | 35 | 0 | 0 | 0 | 35 | 10 |
| 0 | Olein? | 17 | 6 | 0 | 0 | 19 | 6 |
| 3 | Sperm | 30 | 0 | 0 | 0 | 31 | 0 |
| | Lubricating U.S. | 0 | 7 | 0 | 0 | 0 | 7 |

| | | | | | | |
|---|-------------------------------|----|----|---|----|----|
| 0 | Oil: 2 | 17 | 6 | 0 | 1 | 0 |
| 3 | Sperm | 30 | 0 | 0 | 31 | 0 |
| 6 | Lubricating U.S. per gal | 0 | 7 | 0 | 0 | 8 |
| 6 | Petroleum, refined | 0 | 0 | 6 | 0 | 0 |
| | Tar, Stockholm | 1 | 6 | 0 | 1 | 10 |
| 0 | Do. Ambergel | 0 | 19 | 6 | 1 | 0 |

| | | | | |
|---|--------------------------------|--------|---|-------|
| 6 | Petroleum, refined | 0 0 6 | 1 | 0 0 6 |
| | Tar, Stockholm..... per barrel | 1 6 0 | 1 | 1 10 |
| 0 | Do., Archangel..... | 0 19 6 | 1 | 1 0 |
| 0 | Linseed Oil..... per gal. | 0 3 7 | — | — |
| 0 | Baltic Oil..... | 0 4 0 | — | — |

[illegible]

| | | | | | |
|---|---------------------|------------|-----------|---|---|
| 6 | Turpentine | " | 0 3 1 1/2 | " | — |
| 8 | Patty (Genuine Lin- | } per cwt. | 0 11 0 | " | — |
| 6 | seed Od) | | | | |
| 3 | " Pure Linseed Oil | " | 0 10 0 | " | |
| | "Storby" Brand | " | | | |

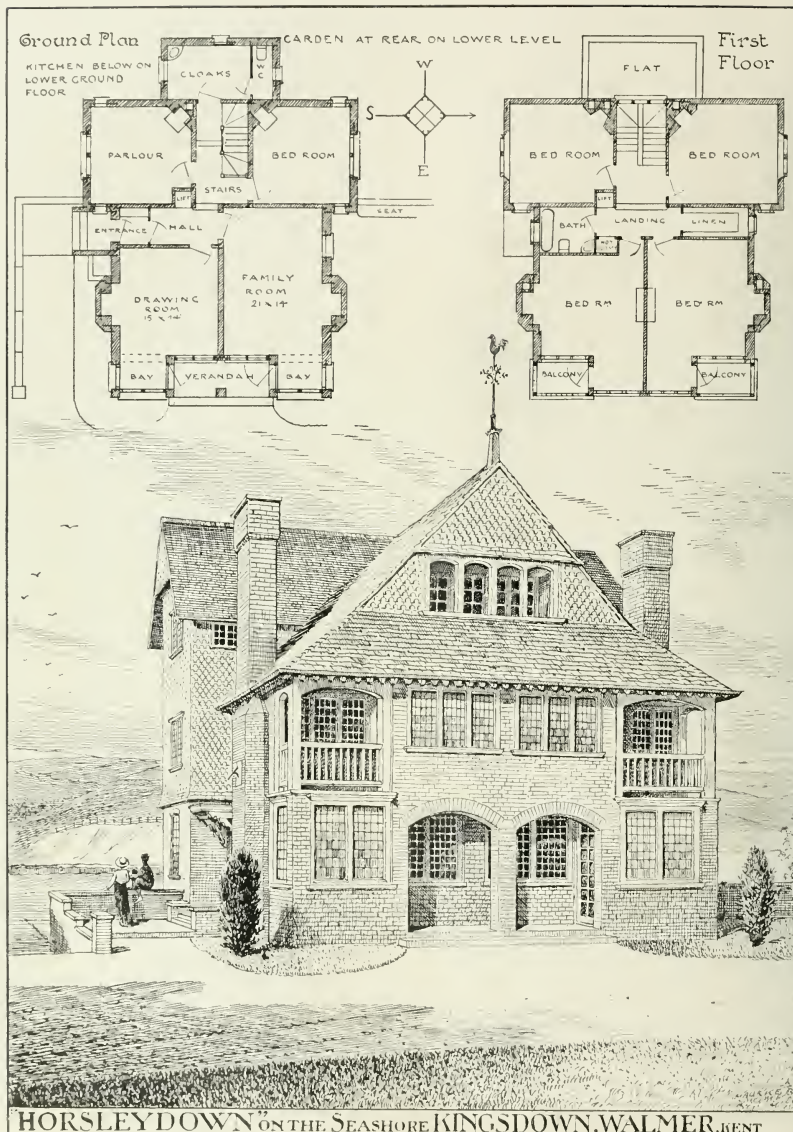
| | | | |
|---|---------------------------|-------|----------|
| 3 | " Pure Linseed Oil, | | 0 10 0 " |
| | " Storty " Brand | | |
| 3 | GLASS (IN CRATES). | | |
| 1 | English Sheet Glass: | 15oz. | 21oz. |
| 8 | Wentworth | 13d. | 21 1/2 |

| GLASS (IN CRATES). | | | | |
|--------------------|----------------------|---------|---------|---------|
| 3 | English Sheet Glass: | 15oz. | 21oz. | 24oz. |
| 8 | Fourth | 1 1/2d. | 2 1/4d. | 3 1/4d. |
| 6 | Third | 2d. | 3d. | 4d. |
| 1 | Fluted Sheet | 2 1/2d. | 3 1/2d. | 4 1/2d. |

| | | | | | |
|----|---------------------------------|------------------------|------------------------|------------------------|--------------------|
| 6 | Fourths | 2 $\frac{1}{2}$ d. ... | 3 $\frac{1}{2}$ d. ... | 4 $\frac{1}{2}$ d. ... | 5d. |
| 1 | Thirds | 2 $\frac{1}{2}$ d. ... | 3 $\frac{1}{2}$ d. ... | 4 $\frac{1}{2}$ d. ... | 5 $\frac{1}{2}$ d. |
| 11 | Flat Sheet | 2 $\frac{1}{2}$ d. ... | 3 $\frac{1}{2}$ d. ... | 4 $\frac{1}{2}$ d. ... | 5 $\frac{1}{2}$ d. |
| 9 | Hartley's English Rolled Plate: | 1 $\frac{1}{2}$ in. | 2 $\frac{1}{2}$ in. | 3 $\frac{1}{2}$ in. | |
| 8 | Figured Boiled, and Repoussé: | 2 $\frac{1}{2}$ l. ... | 3 $\frac{1}{2}$ d. ... | 4 $\frac{1}{2}$ d. ... | 5 $\frac{1}{2}$ d. |
| | | | | | White, Tinted |

| | | | | |
|---|----------------------------------|----------|---------------|---------|
| 1 | Hartley's English Rolled Plate : | 3 in. | 7/16 in. | 1/4 in. |
| 6 | | 3 1/2 l. | ... | 3 l. |
| 6 | Figured Rolled, and Reponesine : | | White, Tinted | |
| | | | 3 1/2 l. | ... |

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THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.O.

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HANGINGS AND "CHURCH-HANGINGS."

It is some time ago since the two subjects of "Furniture and Church Furniture" were selected for the consideration of the Institute on the same evening, and since Mr. Belcher and Mr. Woodward expressed conflicting opinions on the importance to practising architects of the subject than set before them. Mr. Woodward mentioned a house in which—and in one particular easy-chair of which—he had spent a great many hours; but that chair was not designed by an architect; rather, on the contrary, by an artistic craftsman, if he might call him so. Mr. Belcher, on the other hand, who read the first paper, hoped it would call architects' attention a little away from drains and the like. Mr. Woodward thought that if the architect who wasted his time and his client's money in designing furniture would turn to the craftsmen who produced the great works, both in design and execution, which came from Santa-Cruz, he would see an important difference between his work and theirs.

"Drapery," or what used to be called drapery (for we buy the materials from the draper), is much the same as what our predecessors in earlier times called "hangings," "because it hung loose from rings and hooks." It used to be, and still is, an arrangement for obtaining warmth, or the look of warmth, and for breaking and veiling the angular lines of architecture, and so gaining at once advantages both in form and in colour. A woven fabric must be fairly dense and suggestive of warmth and shelter, and not be flaccid, must be firm, and falling into good folds. Woven materials of this sort are chiefly made of the following fabrics: 1. Wool, of several sorts; 2. Silk; net-silk, spun-silk, cotton-linen, and jute.

1. The finest wool is that of the Syrian goat, known in the trade as "mohair." It was delineated by Mr. H. Hunt in "The Sheepdog." Long, straight wools are chiefly from England, north of the Trent, and generally from the colder parts of Europe. Goat's hair is surely the loveliest of them. Southdown, Saxony, Australian, and wools from warm climates are shorter, and fine in fibre, and wavy. They are usually allowed to wriggle up and felt together, and are spun so, by the name of "woollen."

1. Silk. This used always to be flaccid and springless, that it has long been used merely for "facing" fabrics; the backing being of long-haired wool. So used, there is nothing against it but its cost. A silkworm's thread long enough to reach from London to Edinburgh, would go by our letter-post for 2d. "Net-silk" consists of the very fibres the silkworm makes, wound off the

cocoons by hand, and afterwards manipulated under the term "the w." "Spun-silk" is spun by machinery from imperfect cocoons, inside which the worm has either died or has eaten its way out. In neither case can the thread be wound off. The cocoons have first to be softened and boiled in water, then made into a low-class silk thread, only worth per pound about one-fourth of silk spun from matured, healthy cocoons.

2. Cotton is treated like long wool, the fibres being kept straight. Its nature makes it flaccid and listless. It has enough good qualities to keep it in use, but always in a very inferior position. Where its cheapness tempts the manufacturer to use in the cross-threads also, its tendency to crumple has overwhelmed many beautiful fabrics altogether.

3. Linen and Jute.—Their stiffness and springiness, and their tendency to crumple, have mostly kept these two materials down to nearly as low a place as cotton, though jute has been found to make a respectable velvet. Except in three or four shades, such as Turkey red and indigo, dyed cotton fades sooner than other dyed materials; and with the dyes just named it has a hard, mechanical look, which is seldom very pleasant. The following is a list of drapery fabrics, in the order of their goodness, beginning with the best. 1. Old tapestry. 2. Twills, satins, etc., made from long wool, or from goats' hair. 3. Woolen cloth. 4. Silk, damask or plain, if firmly woven, or backed with cross-threads of worsted. 5. Oriental veilings and tent coverings. 6. Velvet or mohair and wool. 7. Cevallet and moreen, and woollen serge, if on a worsted warp. The following materials Mr. Aldam Heaton classes as bad: 1. Cotton velvet, plain or printed. 2. Low "art" serge on a cotton warp. 3. Soft cotton fabrics generally, whether plain or printed. 4. Silk plush. Next to tapestry, might be named certain goods which come from Khiva, and bear the general name of "Khalim," but they cannot be obtained in quantity. We might copy them; but what we actually do is to order them lower and lower in quality till at last they become quite valueless.

Nothing has been said, so far, about that important element in a fabric which we might call its "construction," which is all sometimes hidden beneath an artificial nap, as in our clothes, and beneath a mere frizzle, as in felt. If this view only excluded flannels, felts, fine satins, of cottons or silks from materials suitable for "hangings" we might gladly apply it all round; but we cannot afford to exclude woollen cloth, which for centuries has had a raised or dressed surface, and is still in many ways a most excellent material. As

to the use of these fabrics, there is no need to recommend people to buy curtains—these are sure to do that. Good taste will always incline to making the "valance" a prominent feature. It does not gather dust quite so quickly as ladies suppose, and in the form of the "portière," hung by rings or studs from a moulded dado-rail, is easy to remove and shake.

The curtains of churches are generally in their lower part, hard, bare, and very inelastic, and to put hangings there would furnish them, which carving and painting, at ten times the cost, will never do half as well. So, Mr. A. Heaton concludes his paper.

In recent times church-building has fallen far below what we or our predecessors desired to make it—an excellent revived thing. Now everyone is free to think as he likes, which, as Sir Alma Tadema said, accounted for the great variety of expression in the work of to-day. Some things, and a splash will not make up for the absence of thought, and drapery should not be regarded merely as an expedient for shutting out objectionable features. It should have its proper place assigned to it by the architect. Unlucky haste is fatal to good work.

"Rich and poor alike," says Mr. Vyse, "buy their furniture from the upholsterer, as they buy their funerals from the undertaker. The principal impression made on them is by the bill; and by what they pay they measure their greatness." The architect's work, in this way, is spoiled by that of the furniture-maker. We must restrain the carver, the inlayer, the polisher, and the metal-worker, and encourage them to concentrate ornament, and not to use it to hide bad material and cheap construction. "Our country," says Mr. W. D. Caroe, "is weighted, especially in the cities, with numerous edifices, dedicated indeed to worship, but wholly unworthy of that service, which have ignorance and ill-taste written on every line of them—the worst buildings, as a class, I believe, which have ever, in the world's history, been reared in the name of the first of the arts." What a tradesman's Lorelei is the adjective "Art." "Art" pulpit in any style, in stone or wood, ready for chiselling. "Gothic" credences, "Gothic" lecterns, "Gothic" embroideries, speckled daisies, garish caryatids, fleur-de-lis powder-sticks, and lilies growing in gigantic cross-branches; but compared to the great works of our forefathers as a barrelorgan to the king of instruments. At Truro, every accessory, down to the altar-plate, came from the same hand; and again at Holy Trinity, St. Anne-square, another master-mind guided his own work and also that of other artists and crafts-

men; though the supervision should never pass from the architect himself. The author of the paper, who had tried "to keep the architect's nose a little bit out of drains and taps and sanitary matters," thanked the meeting, as having been the introducer of the subject, for the way in which his paper had been received. Architects who had studied the subject found it was so large that they could not particularise as much as they would. Drawings by Sir G. G. Scott, R.A., Mr. Burgess, Mr. James Brooks, Messrs. Romaine-Walker and Tanner, Mr. Eden Nesfield, Mr. J. D. Grace, Mr. Brydon, and the late Augustus Pugin, were exhibited to the meeting; and the R.I.B.A. records its thanks to the authorities of the S.K. Museum and to many private persons for their assistance on this occasion.

ARCHITECTURE AT THE ROYAL ACADEMY. I.

The general effect of the scheme of hanging this year in the Architectural Gallery is certainly bright and harmonious, without too manifest an effort after the old method of grouping to give prominence to some individual centrepiece, possibly the work of a person of eminence, rather than because of the importance or intrinsic merit of the building represented. On the other hand, prominent places are given in the present gathering to the productions of outsiders, adding, no doubt, to this preponderating effect of cheerfulness, largely due to the prevailing vogue just now of lightly tinting architects' drawings intended for exhibition, and thus insuring a touch of colour intermingled with the monochromes and pen-and-ink work. The absence of the heavy, old-fashioned building pictures, embellished with prancing horses and bedizened females, is certainly a gain. That so many and such differing kinds of building, by various architects, should be shown in this gallery, all by one or two favourite water-colourists, certainly detracts from the interest of the exhibition, and the occasional lack of skill in the rendering of these examples of building, viewed as edifices, is as noticeable as the skill and capability of the artist.

The oldest Architect Academician, Mr. T. Graham Jackson, is not represented this year. Sir Aston Webb, R.A., shows two works, both unassumingly placed towards the ends of the main wall. The drawings are by Mr. Gascoyne. The first (1663) represents an interior of the College Chapel at Worskop, and is well executed. This drawing is reproduced by us to-day, so that the merits of the severe simplicity of the design, marked, as it is, by good proportion, will at once be recognised as worthy of the best traditions of English school life. The second picture (1711) illustrates the Central Office of the Grand Trunk Railway of Canada, in Corkspur-street, showing the painted frieze by Mr. Frank Brangwyn. A.R.A., which extends round the ansular rear part of this public hall with its pannelled walls and handsome gilded ceiling, and the black-and-white marble pavement, the whole treatment being exceedingly refined and handsome without pretentiousness. The cleverness of the adaptation of the plan to fit the site is as marked as it is an essential feature of this notable building.

Mr. John Belcher, R.A., in conjunction with his partner, Mr. J. J. Joass, sends the extended facade of Whiteley's Universal Emporium at Westbourne Park,

erected last year (1758). The same architects are also represented by the Royal School of Medicine, Henrietta-street, W., which is to be opened by the King this month. The dignified breadth of its stone-faced elevations marks it as a monumental addition to the architecture of the West End of the Metropolis. The elevational drawing (shown by No. 1545) is of a slightly-handled kind, faintly tinted, and in pale brown lines, with the detail feelingly expressed, though perhaps so bold a facade needed a stronger drawing to impress one with a sense of the strength of the building itself, with its bold roof over the stone attic. The third drawing, shown by Messrs. Belcher and Joass, is a very fine piece of work by Mr. George Murray, representing an interior of the Holy Trinity Church, Kingsway, with the colouring intended to the ceilings and vault of the apse. The organ-case helps to furnish what is at present a very bald place of worship, which can never be seen quite as this picture suggests (1603), with parts broken away to render it possible.

Morden House, Blackheath (1593) is represented by a delightful water-colour, giving a graphic idea of the garden scheme adopted as a suitable environment to this suburban residence, worked out as a design in a popular rendering of the Renaissance simply handled by Messrs. John Belcher and J. J. Joass.

Professor Reginald Blomfield, A.R.A., has for his most pictorial exhibit this year a drawing from the pen of Mr. Adrian Berrington, which we give. It is a view of Mr. Athelstan Riley's country seat in Jersey, erected in granite, on the site of the Manoir de la Trinité (1634). The work carried out here by Professor Blomfield includes practically the rebuilding of the old mansion house, with extensive additions, including a private chapel and a winter garden, harmoniously designed with becoming dignity in the French Renaissance manner, which favoured lofty roofs and little dormers. Wretham Hall, Norfolk, drawn by Professor Blomfield himself in pencil, is a large new mansion in a Georgian treatment of brick, square on plan in so far as the main portion is concerned, the kitchen wing ranging away to the right of the garden front seen in this ample perspective (1581). Surmounting the centre is a capacious balcony belvedere with a Classical turret in woodwork rising over the lead flat. A pedimented centrepiece enriches the facade overlooking the terrace, which has flat flagging at the edge, having handsomely-carved vases spaced at intervals. The quoins are rusticated, and the middle opening of the front has a curved-shaped architrave with dressings in stone. Lincoln Public Library (1755) supplies Professor Blomfield with his third exhibit, a general key view in the corner of his half-inch detail shows how the cupola crests in the general elevation; but a plan of the building would have added to the interest of the subject, which is distinguished by the lofty, lead-covered dome, handled in a French style of plain Renaissance, having pannelled walling between the fenestration and vases in stone, to emphasise the angles of the pavilion.

Messrs. Sir Ernest George, A.R.A., and A. B. Yeates show only two comparatively unimportant subjects this year. These include a water-colour sketch of a wood-framed house carried out on a brick-arched base in British Guiana (1598), with a picturesque verandah and boarded walls. The middle portion runs up into a quasi-tower, and on the top occurs an Oriental sort of turret, somewhat in keeping with its location and character. The second picture shows a moderately-sized

house, called "Woodside," Esler (1607), built for Mr. A. H. Moreing. It has a pedimented portico in stone on the main front, and a semicircular stone porch on the return side, so that it is not clear quite as to which is the real entrance for the visitors' use. The roofs are stone slated, and the chimneys are skilfully grouped. Sir Ernest George shows in the Water-Colour room a sketch of the Roman Theatre, Tingand, North Africa (578), with the seated auditorium, which much interested us.

Mr. Ernest Newton, A.R.A., is represented by three drawings hung close together on one splay of the gallery. Oldcastle, Dallington, Sussex (1623-1628) is a long, rambling, but charming house, with tile hanging, and marked by strong, unbroken horizontal lines, in keeping with the old work of the South Down countryside. The detail given of the stone-and-timber gable is delightfully rendered. The second house by Mr. Newton is an alteration work at Cheltenham to "Greenway" (1629), done in stone, with three gables quaintly grouped along the garden side. This drawing we also give to-day, and a plan illustrates the extent of the premises.

The principal building illustrated in this gallery is the National Museum of Wales, shown by Messrs. Dunbar, Smith, and Brower's excellent perspective and plans (1725). The design is familiar to our readers from our previous illustrations of it in 1910. The architectural merits of this building, and its national character, too, amply justify the central position assigned to the drawings at the end of the gallery.

Mr. John J. Burnet also obtains a prominent place here by with two capable diagrammatic perspectives (1722-1730) of the Grand Staircase of the British Museum Extensions, which are now nearing completion. The soffits and ceilings are richly coloured, and the bronze lift-cages gave the colourist a chance of blending the parts in his pictorial suggestions; but in order to display the extent of the stairway parts had to be broken away, and the result is necessarily conventional, and difficult to comprehend, even with the aid of the plans attached to one of the views. The breadth and dignity of Mr. Burnet's work is unquestioned, and must be seen to be appreciated.

Close below the centrepiece is an interior of the Council Chamber of the new County Hall, by Mr. Ralph Knott (1797). The ceiling, circular on plan, is flat, with deep coxes, richly coffered, and springing from the octagon formed by the cantled spays where the windows occur, above groups of monumental statuary. On the cardinal faces of the council chamber are recessed galleries with colonnaded fronts, having bronzed capitals on the red marble shafts, which give colour to the architecture. The well of the chamber is seated horseshoe-wise, with a big throne-like seat for the chairman facing the members. A blue hanging curtain along the rear range of seats supplies a further suggestion of colour, greatly helping the general effect.

Mr. Edwin L. Lutyens's chief exhibit this year will add another excellent building to the Metropolis, and these head quarters of the Theosophical Society now being built in Tavistock-square will certainly possess distinctive and architectural character. The plan in the corner of the view (1558) shows two wings, or pavilions, with lofty roofs, in Upper Woburn-place, and flanking the central drive in way or outer quad leading to the entrance-archway approach of the Cour d'Honneur, to the right and left of which

are the greater halls. Two smaller ones flank the archway. This latter rises into a boldly-handled tower, topped by a circular gallery stage, supporting a dome. A segmental pediment with pilasters are employed as a mural treatment to the façade of this gallery tower. The lower part being rusticated. The water-colour undoubtedly does the design every justice, and adds greatly to the interest of a somewhat unusual subject, worked out in a very original way. Shops will help pay the rent along the Barton-street frontage. Mr. Lutyens has two other perspectives of the Art Gallery, Johannesburg (1553-1562), but it is not clear whether both pictures refer to the same building or not. If they do, the blocks must greatly differ. The treatment is plain in style after a French manner, the first drawing having a pedimented central block with pavilions right and left connected with the main building by curved wing walls. Italian tiles are employed for the roofings. The middle part in the second picture has a niched mural composition for statuary, and the angle piers of the wings are finished off with vases. There is a square pool in front, adding a sense of coolness and breadth.

A feature of the exhibition is contributed by the several detail drawings shown. The Manchester Library and Art Gallery Competition and the Marylebone Town Hall Competition furnish several big frames. Mr. Edwin Cooper has a first-rate elevation of his chosen design for the latter building as revised for execution. The drawing has not been accorded so good a position in the gallery as it deserves. Church work on this occasion is very strongly represented, including examples by Mr. Temple Moore, Mr. W. Tapper, Mr. W. D. Caroe, Mr. Fellowes Prynne, Professor Beresford Pite, Mr. Maurice B. Adams, Messrs. Greenaway and Newberry, also by Mr. John O. Scott.

BRICK ORNAMENT.—IV. CORNICES.

The cornice really forms the most important architectural member introduced in any building, whatever its nature may be. Given correct proportional design on general lines, even if windows and doors be perfectly plain, a good cornice, of correct proportions to the whole mass, at once gives a finish as the principal feature, aiding to form a more

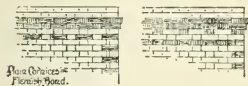


Fig. 1.

complete, satisfactory, or perfect piece of architecture. Simple cornices may be formed for this class of structure, as shown by Figs. 1, 2, and 3, either in toned bricks or massed in different colours, with plain projecting courses, an architrave or necking-course being simply picked out in colour, without any projection. Fig. 4 shows an ordinary cornice in projecting courses, with a dentil course formed by the headers, and a necking-band, the whole worked in accurate English bond. The detail plan of angle shows a good method for obtaining continuity of coursing, and also a thorough tie-in on the angle. A more elaborate cornice in projection is illustrated by Fig. 5, with vertical bands which have the appearance of triglyphs, thus forming a panelled frieze. This method gives a considerable amount of ornamentation; but, as will be noticed, the frieze portion has to be built up with straight joints between the panel and triglyphs. The angle to same also

requires cutting as shown by the accompanying detail plan. Fig. 6 illustrates a different type of construction, which gives a good effect, and may be varied as shown by the separate sketches, Nos. 1, 2, and 3 respectively, a marked distinction being obtained by the introduction of either the whole brick

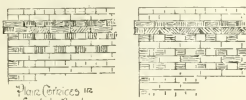


Fig. 2.

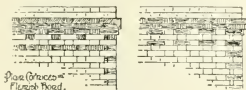


Fig. 3.

or different spacing between the dentils, the dentil-course itself being formed by bricks on edge, instead of projecting them the other way, as in ordinary coursing. The latter method suits some classes of structure; but when used at all, it is too often in an inappropriate position, producing a coarse effect. The brick-on-edge method shown

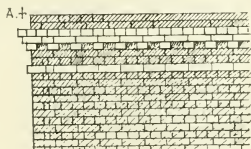


Fig. 4.

gives a far better-shaped dentil when used singly, with single-brick spacing between. (See later figure, No. 9.) When used double, as illustrated above, the vertical joint aids in breaking up uniformity to a greater extent. The space between can be filled in either with double or treble bricks, or as shown in the first example—with a whole 9in.

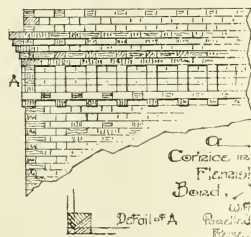


Fig. 5.

brick, which gives variety by throwing the dentils into stronger relief—a point often desirable when at some height. A heavier cornice still, in which the dentils have to be kept correspondingly heavier also, and are worked in a double course, is shown by Fig. 7. The effect of a large amount of moulding to a cornice may be well enough conveyed, with very little extra expense

beyond plain oversailing courses, with a couple of the plainest moulded bricks, as illustrated by Fig. 8. the corona being formed with a simple splayed brick, whilst

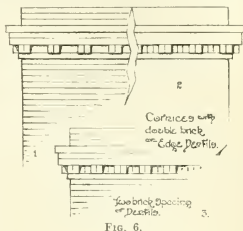


Fig. 6.

the ovolo course beneath the dentils is formed in similar fashion with bull-nosed or quarter-round bricks. Such a cornice, at some height from the ground, has much the

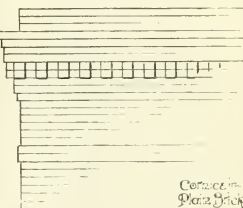


Fig. 7.

effect of an elaborately-moulded piece of work, actual details themselves being invariably lost from a distance; therefore they are not appreciably missed. For more effective and refined work, to be placed

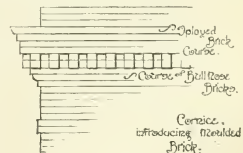


Fig. 8.

nearer the eye and ground-level, a couple of courses of moulded brick introduced as shown in Fig. 9 are quite satisfactory without utilising all the stock-pattern mouldings

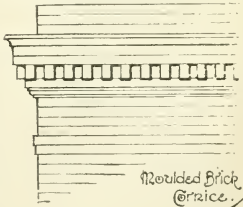


Fig. 9.

usually and generally accepted as being essential to the cornice. Fig. 10, again, shows a heavier type, suitable for a con-

considerable height above the ground, formed by plain projections. The difficulty with brick cornices of good projection are the angles. The plan of angle on the latter figure

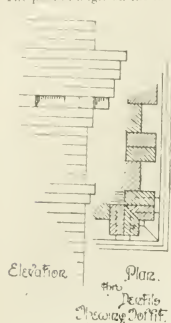


FIG. 10.

shows the method of forming same; but the bricks are preferably still further secured with galvanised iron ties. A better method of construction is illustrated by the succeeding figure, No. 11, although it involves more

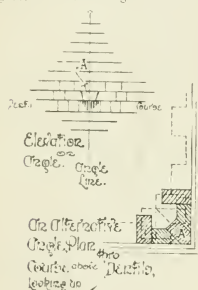


FIG. 11.

cutting, the projecting and two side bricks over the angle being cut and rubbed similar to arch bricks. Fig. 12 is a cornice of somewhat the same type, of heavy appearance.

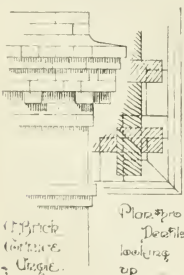


FIG. 12.

Whilst shown with single-brick dentils, it would prove much stronger constructionally with the double-brick dentils, as illustrated in Figs. 7 and 8. A brick cornice of any

description, more especially those having a good projection, are preferably finished with a weathered course of cement on top, as

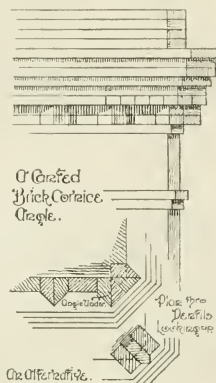


FIG. 13.

shown by this figure. The cement may be coloured with ochre, brickdust, etc., to match the brickwork, and is then practically unnoticeable. This, of course, affords a con-

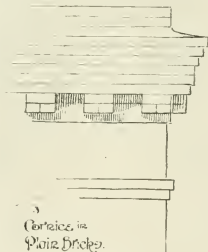


FIG. 14.

siderable safeguard against decay in the jointing, which might prove dangerous if left unattended or unnoticed. Fig. 15 illustrates a canted angle with splayed bricks backed

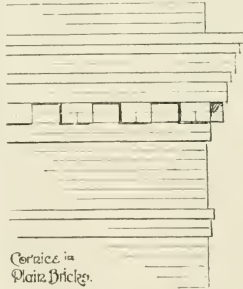


FIG. 15.

together, forming pointed dentils, which produces another variation from the customary methods. Figs. 14 and 15 are also somewhat

similar types, but of a still heavier character such as might be applied to large buildings of considerable height and mass. The designs illustrated in Figs. 16 and 17 are of

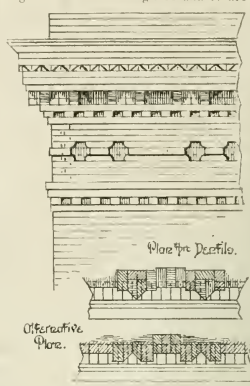


FIG. 16.

a somewhat similar type, but much more elaborated as regards ornamental effect. At first glance they might be taken for very costly cornices, involving a large amount of cutting. Such is not the case, however. The

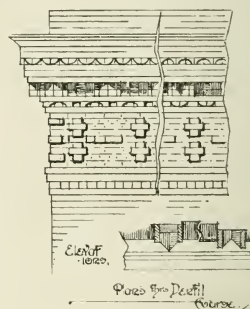


FIG. 17.

two courses at top forming the corona can be constructed with the two types of splayed brick which are in common use, and obtainable ready-made almost anywhere. The pointed dentils are also formed with same.

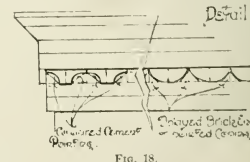


FIG. 18.

whilst the ornament above the dentil-course can be put in with the triangular-pointed coping bricks used for 4 in. walling—bull-nosed, half-round coping bricks, or the cavetto moulded brick—the sunk panels shown in the frieze to Fig. 16 being formed as well with the ends of bull-nosed bricks.

Fig. 17 also shows the cavetto introduced as a further enrichment beneath the dentils. It will be seen from the plan of the dentil course to this figure that half-bricks or queen chairs are used at the sides of the spiky brick—a method whereby greater refinement may be obtained with work of this character. The queen closer is an exceedingly useful brick in this capacity, and may often be introduced in various positions in ornamental work with the greatest improvement. Fig. 18, a detail of the construction, shows how such corneices may be readily formed, pointing with coloured cement on face after the joint has been well raked out.

W. G. KIRBY, Architect.
(To be continued.)

THE BRITISH SCHOOL IN ROME.

A White-paper has just been published from H.M. Stationery Office giving the draft charter of the British School at Rome about to be established by the Royal Academy and the Royal Institute of British Architects in conjunction with the Exhibition Commissioners of 1891 and the Royal Society of British Sculptors. The objects of the school are defined in the charter:

- (a) The promotion of the study of Archaeology, History and Letters, Architecture, Painting, Sculpture, and the Allied Arts by British subjects.
- (b) The establishment and maintenance in Rome of a Hostel for British students of Art, Archaeology, History, and Letters.
- (c) The establishment and maintenance of Studios and other buildings for the purposes of the school and their use by the students and other persons attending the school.
- (d) The continuance of the archaeological and other researches and publications which have hitherto been carried on and issued by the old British School at Rome, and the carrying on and issuing of such other studies and researches and publications as may from time to time be determined upon.
- (e) The formation and maintenance in Rome of a General Library of Art, Archaeology, History, and Letters.
- (f) The Awarding of Scholarships, Exhibitions, Bursaries, and other forms of assistance to British Students of Art, Archaeology, History, or Letters.
- (g) All such things as shall be incidental to or tend to the promotion of any of the objects aforesaid.

The Council will be constituted as follows:

- (a) Two Members appointed by the Sovereign under the Royal Sign Manual.
- (b) Four by the Commissioners for the Exhibition of 1891.
- (c) One by the Trustees of the British Museum.
- (d) Four by the Royal Academy of Arts, of whom one will be an Architect, two will be Painters, and one will be a Sculptor.
- (e) Two by the Royal Institute of British Architects, both of whom will be Architects.
- (f) Two by the Royal Society of British Sculptors, both of whom will be Sculptors.
- (g) Two by the Royal Scottish Academy.
- (h) Two by the Royal Hibernian Academy.
- (i) One by the Prime Minister for the time being.
- (j) One by the President of the Board of Education for the time being.

There will be four Faculties in the first instance—namely, (a) Archaeology, History and Letters; (b) Architecture; (c) Painting; (d) Sculpture.

The names of the first members of the Faculty of Architecture are: Messrs. Reginald Blomfield, M.A., A.R.A., F.R.I.B.A.; William Richard Lethaby, F.R.I.B.A.; Edwin Landseer Lutyens, F.R.I.B.A.; Sir Robert Stodart Lorimer, A.R.S.A., F.R.I.B.A.; Ernest Newton, A.R.A., F.R.I.B.A.; Charles Herbert Reilly, A.R.I.B.A.; John William Simpson, F.R.I.B.A.; Leonard Eloysius Scott Stokes, F.R.I.B.A.; and Sir Aston Webb, C.B., C.O., R.A., F.R.I.B.A.

The Commune of Rome has presented for the purposes of the School the site of the pavilion used for the British Section of Fine Arts in the International Exhibition held at Rome last year, and Colonel Charlton Humphreys has presented the buildings on the site.

At a meeting of the Welsh National Museum Council at Cardiff on Saturday, it was announced that the Treasury had decided to increase the maintenance grant of the museum from £2,000 to £2,000, and, under certain conditions, would increase the grant in aid of the building, the foundation-stone of which will, it is expected, be laid by the King next July.

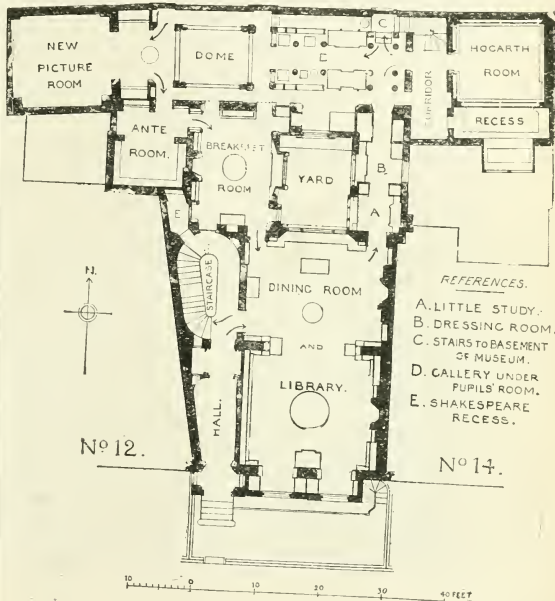
LINCOLN'S INN FIELDS—L.C.C. SURVEY OF LONDON.

[WITH ILLUSTRATIONS.]

There are few spots in the whole of the Metropolis of more historic interest or civic importance than the open space which forms the greatest square in London, known as Lincoln's Inn Fields, though, by its curtailed extent and circumscribed rectilinear shape, their present environments bear very little resemblance to the once famous old trinity of fields from whence the long-familiar name was derived. It is over 300 years ago since

Grange," the third field, designated "Fickett's," reached over Portugal-street and Searle-street down to "the Ship Gate," abutting on to the Strand, which then, as now, stood well above the swamps next the river. The "Purse Field" included Kingsway from Kelley-street to the Holborn Restaurant, and extended one to half-way over the present square, about where Sir John Soane's museum stands, over against the ditch which came between as the divisional line between "the Cup Field," reaching up to Great Turnstile.

The topographical scheme which contains



GROUND FLOOR, SIR JOHN SOANE'S MUSEUM.
LINCOLN'S INN FIELDS. 1794.

"Purse Field" adjoined "Cup Field," with Fickett's Field attached to the latter. Their several figurements may be seen represented in detail by the capital map of the property which Mr. W. E. Riley, the Superintending Architect to the London County Council, has had prepared to illustrate the "Survey of London," just published. The map shows Lincoln's Inn Fields as they stood about 1592, in the reign of James I. At that period they were bounded on the west by a common open ditch or sewer which crossed the "Holbourne" about the point where Newton-street to-day turns out of High Holborn, and then this culvert passed close to where the "Pightles" stood, and wended its odorous way towards the Thames by the purlieus of Clement's Inn, the duct then going through where the Courts of Justice now rise in their lordly Gothic of Victorian date.

In the north, the boundary of these extensive fields was furnished by "Whetstone Park," known to-day only as an obscure alley south of Holborn. The gardens of Lincoln's Inn up to Chancery-lane set their limit on the eastern side, while on the southern extremity, passing "Lincoln's Inn

this map forms the third volume of the L.C.C. "Survey of London," and it is devoted to Lincoln's Inn Fields as part of the ancient parish of St. Giles-in-the-Fields. The work, with ninety-eight plates, has been produced under the general editorship of Sir Laurence Gomme, the author of "The Making of London," and Mr. Philip Norman, F.S.A., the illustrations and architectural descriptions being supervised by Mr. W. E. Riley when he did not personally contribute them. The committee which has this survey work in hand is very large, and no doubt, in its way, is influential enough, some of the members being experts; but Mr. W. W. Braines, B.A., in charge of the Library and Records Department of the L.C.C., has had more to do with the details of the scheme, probably than anyone, and the editor acknowledges Mr. Braines' unwearied industry in recovering the true history of one of London's most interesting sites. In order to deal comprehensively with the whole of Lincoln's Inn Fields, the ancient parochial boundary up to 1900 has been adhered to, though really, under the Local Government Act of 1899, the parish line on the southern



REAR ROOM, GROUND FLOOR, 35, LINCOLN'S INN FIELDS.

SIR ROBERT TAYLOR, Architect.

has been altered. The get-up of the book is admirable, and the programme adopted is well suited to insure a permanent value to the scheme. The footnotes and copious marginal references add immensely to the information thus got together, with quotations from old deeds, engravings, and contemporary writings, illustrating the various developments which have gone on, as shown by several maps and plans, such as Morden and Lea's diagram of 1682, whereon Little Lincoln's Inn Fields is depicted with the old Inn buildings off Chancery lane, next the gardens, up as far as Great Turnstile. Cavendish Weedon's design for laying out the Fields (1699) is here reproduced. He proposed to erect a church for musical services in the middle of the square, showing what purported to be a design by Sir Christopher Wren; and in 1712 the idea of a church, justified by popular opinion, induced Colin Campbell, by the desire of "persons of quality," to prepare drawings for a spacious place of worship, "conformable to the simplicity of the ancients," in the square. Sir Charles Barry in 1842 drew out plans for erecting the Courts of Justice in the centre of the Fields; but, fortunately, all these schemes came to nothing.

The most notable façades still standing

include Inigo Jones's Lindsey House, which, we are glad to see, the London County Council have insured shall be retained intact. Nos. 37 and 58 possess the original façade, and it well compares with that of Lindsey House. The central entrance to it was improved by Sir John Soane in 1795, when he added the semicircular porch, with Roman Doric coupled columns, the premises at that time being divided. It must be added that Soane's portico was cleverly managed. No. 65 (by Thomas Leverton, the architect) was built in 1772, and its stone front has many points of merit in which Bonomi, Leverton's assistant, may have had a hand. Next to it, and flanking Great Queen-street, stands New Castle House (66 and 67), which was designed by a Dutchman, one Captain William Winde, as a town residence, with a big hall in the middle and rooms on each side. It remained unfinished till 1689, when Lord Powis was outlawed. Sir Christopher Wren then made a survey of the premises, with a view to adaptation as an official residence for the Keepers of the Great Seal, and he altered the building at a cost of £1,030. The Dukes of Newcastle became possessed of the house in 1705. Subsequently it was divided into two by Thomas Leverton.

Sir John Soane's museum, of which we

give a plan, occupies the site of a residence which went by the name of "The Pine Apples"—that is to say, before the houses in Lincoln's Inn Fields were numbered. In a deed dated 1737 it was described as a "messuage situate in the North Row, called Helborn Row or Turnstile Row, in the north part of Cup field in St. Giles." The party-wall between Nos. 12 and 13 follows the former boundary-line between Cup Field and Purse Field, at that time determined by a sewer-ditch, and this ancient division of the two properties accounts for the peculiar angle at which this wall is set, as shown by the plan. Soane built No. 12 in 1792, and occupied the premises until he erected the larger house, No. 18, to which he removed in 1812. He still retained his old office at the rear of No. 12, and this office occupied the site now devoted to the "New Gallery," which was erected in 1890 from the design of James W. Wild, who was curator of the museum from 1878 to 1892. The back premises of No. 13 are very much wider than in the front, and Sir John Soane certainly displayed a considerable ingenuity in utilising the extra area thus obtained, and he cleverly masked the deviation from the rectilinear which this wall necessitated. He also laid out the plan of his museum with



BACK ROOM ON GROUND FLOOR, 45, LINCOLN'S INN FIELDS. ABOUT 1750.

excellent taste, and contrived the lighting of the basement very adroitly. Subsequently he rebuilt No. 14, and, having acquired the site of some old stables at the rear, he further extended the museum premises as we see them. He obtained an Act of Parliament in 1833 for the perpetuation of his museum, and on his death, in 1837, his trustees, named therein, were appointed to carry out the trust. The plan, which we have reproduced, was prepared by Mr. Walter L. Spiers, A.R.I.B.A., the present curator, who succeeded George H. Birch, F.S.A. Birch held the post from 1894 till 1904. Wyatt Papworth only lived about a year after he was elected curator in 1893, and James W. Wild preceded him, as already mentioned. The more famous Joseph Bonomi was curator from 1861 till 1878, the first to hold the office being George Bailey (1837 to 1860). These particulars have a special interest in connection with the museum, and we were rather surprised that "the survey" under notice, which gives so much detailed information in many ways, did not allude to the new part of the premises built by Wild, consequently we supply the information here.

No. 35, Lincoln's Inn Fields occupies a plot on which the original buildings had to be finished by the Feast of St. John the Baptist, 1659, and the house was in the same deed described to be "proportionable double buildings or dwelling-houses" in Portugal-row. The rate-books no longer refer to them after 1757, by which time they had got into so bad a condition that one remained empty for fifteen years. The rebuilding, from the plans of Sir Robert Taylor, architect, was effected about this time, and some authorities give 1754 as the actual date. No. 35 has a remarkably good plan. The party-wall shows that the intention was to provide two dwellings of approximately the same area, but at the same time to obtain a central

feature between the two, in order that the whole façade might form one composition. The existing exterior gives no idea as to how this was realised. The chief interest of the house is in the interior, and specially the ironwork on the particularly large staircase, which is lighted from a lantern in the roof. The steps are in a continuous flight of thirty-six treads, with the result of undue fatigue when going up and dangerous risks when coming down. The wrought-iron balustrade is exceptionally good, and each baluster is made to fit its particular place. They are all of the lyre pattern. On the first floor there is a beautifully-executed panel of scrolls and leaves, as herewith illustrated, and extending part of the way round the well-hole of the stairs. The writer in "The Survey" suggests that in design this work is reminiscent of Jean Tijou's work of the late 17th and early 18th centuries. The rooms in 35, Lincoln's Inn Fields are also very interesting, and we have chosen the view given of the rear room, which contains an "alcove." It will be seen that Sir Robert Taylor, in designing it, introduced the correct Roman and Palladian form of volute, with cushion at the side. This form of capital does not lend itself to portions of columns or pilasters, and suffers especially in internal angles, as here so very evident.

No. 45, Lincoln's Inn Fields contains a considerable amount of architectural embellishment; but its plain brick façade in the western end of Portugal-row is not very remarkable. The staircase possesses an attractive and ornamental wrought-iron balustrade. The ground-floor rooms are marked by refined detail. We give a view of the rear apartment, which has an alcove with Ionic columns and pilasters supporting an enriched entablature, the cornice ranging with that round the room. The chimney-piece looks as if it belonged to the house, and

is refined and suitable to the position it well occupies.

We have chosen these interior views because anyone may see the exterior façades in Lincoln's Inn, and most are familiar enough to many of our readers, while very few people indeed have had the chance of seeing their internal features. To all architectural students and lovers of historic London this survey cannot fail to be most attractive.

SOME PRINCIPLES IN THE VALUATION OF LAND VALUES.*

By G. TAYLOR LOBAN, F.S.I.

The property dealer does not work out with tables the prices he will give for securities. He has bought them a hundred times before, and knows to a pound what any particular one may be expected to yield by way of return on capital outlay. He knows, too, the exact moment at which it is worth his while to buy or sell—whether in relation to other openings in the same market or to the markets in other forms of security. The prices that he establishes become substantially the market prices of the day, and he establishes them out of his knowledge and experience, and not by computation from the tables. So far, then, as value is established by the custom of dealing, tables have nothing to do with it. It is when a number of disconnected results are to be compared, and when the conclusions to be drawn from them are to be ascertained, that the necessity of some standard of comparison arises. It rarely happens that any two transactions are alike in every particular. Some means are needed by which they may be cast into similar form, so that common features may

* Read at the ordinary general meeting of the Surveyors' Institution, Monday, April 29, 1912.



WROUGHT-IRON BALUSTRADE PANEL STAIRCASE LANDING, 35, LINCOLN'S INN FIELDS. (See page 623.)

SIR ROBERT TAYLOR, Architect.

be distinguished and observed. Such means and such a standard of comparison the machinery of the tables is found to furnish. Any result may be reduced by aid of them to a common denominator of 3 per cent., 5 per cent., or 8 per cent., as the case may be; and when, as a matter of observation, it is found that transactions in certain classes of property always reduce to the neighbourhood of, say, 5 per cent., that percentage acquires the character of a quality of that class of property. In this way an effective and approximate guide may be obtained as to the view taken at a particular time of the worth and desirability of such and such a class of property—that is to say, the view taken by the minds most conversant with property and most competent to form judgment of it. Or, again, when a class of property which has for a period of time been characterised by the mark of a particular percentage changes and takes on the characteristics of some other percentage, the conclusion is drawn that that class of property has risen or fallen in value. There is, however, another use to which the tables may be put. By their aid a discussion on value may be carried on, in terms of rental, deductions, and years' purchase, with an ease which would be quite impossible in the absence of this part of the valuer's machinery. Causes of difference may then be detected, and so be reduced to issues of fact or of opinion. Inconsistency may be located and exposed. The exchange of views and contentions may be facilitated. Many members will have experienced the impossibility of a discussion with a quite competent valuer who arrived at his opinions

only out of the depths of his inner consciousness and past experience. He has no explanation to offer for the view he states other than that he considers it must be so. To all entreaties to express himself in terms of common comparison he has to oppose the obdurate front of one who despises the theorist. His results may be quite sound, but he cannot give them the form for convenient discussion. In fine, the most important functions of the tables are—first, to reduce to terms of common comparison the specific and individual operations of the general body of dealers; and, secondly, to furnish a medium for the convenient discussion of values. The process to which they are more commonly applied—viz., the determination of value from certain data of rental, years unexpired, and so on—is really in the nature of a back sum, and its object is to get as nearly as possible to the results obtained when a man with a knowledge independent of tabular computation enters upon the transaction. One of the vicious consequences of what I may call the table habit is that it generates an idea in the minds of the inexperienced that property never changes hands except at definite and separate rates of interest—that if a property is not sold at 5 per cent., it is at 6 or 7 per cent. Now it does happen—even frequently that property changes hands at these exact rates; but far more frequently is it the case that the price paid is somewhere intermediate between them. It need hardly be pointed out that the tables could not be conveniently multiplied. Every valuer, however, if he does not feel disposed to make certain allowances, explained hereafter, so as to bring the

security under one of the common rates of interest, should be at liberty to make such final adjustments in results deduced from the tables as seemed in his experience right. The same principle applies to the selection of a year's purchase. We may take eighteen or twenty-one, but it seems like heresy to take nineteen and one-fifth or twenty-two and three-sevenths years' purchase. Yet this is how the market operates, and a valuer who thinks a security is between nineteen and twenty years' purchase should express his opinion in his valuation. Another and more interesting consequence of the idea that the tables determine value, instead of expressing it by reference to a known standard, is the attempt made some time since to reconstruct the tables on a new principle, on the ground that they made provision for repayment of capital at impossible rates of interest. It was argued that an investor who bought a leasehold on the 8 per cent. table could not reinvest his annual surpluses at that rate, and therefore the price he should pay ought to be computed on the 8 per cent. table for income and, say, 3 per cent. for reinvestment. It is not so certain that reinvestment at very high rates does not actually take place. But, be that as it may, the question of ability to reinvest at the rate of calculation does not really arise. The rate of calculation is introduced by way of fixing the class of the investment, rather than of indicating what it really involves. It is a mere figure of speech that we say a purchase is made on the 8 per cent. table. If we suppose for a moment that the cumbersome system of dual percentages were adopted, this would make no difference to the price obtained for the

property in the market. An unexpired lease of thirteen years bought at eight years' purchase may be regarded as bought upon the 8 per cent. table in the usual way, or it may be regarded as bought on the 6 per cent. table, reinvestments of sinking fund to be at 3 per cent. Whichever way it is regarded makes no difference to the actual market price. The sum paid will be the same in either case, for it depends on the market, and not on tables. At least, simplicity is gained by classifying the transaction under one rate in the usual way. It cannot be too strongly urged or too closely realised that the rates per cent. and the years' purchase are simply convenient categories or pigeon-holes into which results may be thrust for subsequent reference, and that when they are used for valuing they represent an attempt to reconstruct the conditions of the market by comparison of convenient standards. Apart from the continued sanction of the market, there is no virtue in them. In practice, and for the sake of convenience, however, valuation is very commonly effected by the machinery of the tables, and it becomes of interest to observe the functions of each of the factors that go to make up such a valuation. These factors are the rent, the deductions, and the years' purchase or multiplier. The legal definition of rent was well known in the days of the examinations, and has been well forgotten since. The valuation definition of rent is that it is an income arising by the letting of property; it is gross if the maintenance charges on the property are to be met out of it, it is net if it is free of such charges. Frequently, as in the case of a weekly tenancy, the rent is an aggregate of gross rent proper and of rates, taxes, and other charges. Rent depends partly upon accommodation, and bears a certain ratio to it. An increase of accommodation up to a certain point will mean an increase of rent. The limit is reached when the accommodation goes beyond the means or requirements of the class for which it is intended, or for which it can be used. From this point onwards rent ceases to increase with accommodation. It has to be remembered that a rent must be obtained out of means which the property itself is an instrument to provide. The amount of rent that a property can stand still depends less on the extent of the property than on the extent of the profitable use to which it can be put.

Cases of big premises at low rents and small premises at high rents are common to everyone. Competition also tends to raise rents, but only to this limit imposed by the productiveness of the property. Rent is subject to losses by empires and bad debts. Even a net rent will, therefore, require some further reduction by way of what may be called contingency provision before it can be regarded as a secured income. Now, while expenditure on rates, taxes, and repairs can be exactly forecast, and allowed for, allowances for voids and lesses is a matter of experience and estimate. A very close estimate of the proper proportion of the total rent to be allowed is sometimes made by observing in the property accounts the actual loss per cent. under those heads during a few past years. The figure by which the net income is multiplied (commonly called the years' purchase) depends upon security. It also depends on length of term, but not as a matter of judgment. Whatever tends to add security to the income tends also to raise the years' purchase. Anything that detracts from the security of the income lowers the years' purchase. There are some qualities which affect both rent and security. Greater desirability tends to throw up rent; but when rent cannot be increased, it reacts to improve security. As years' purchase depends on security of income, any alteration in the contingency allowance for deductions will affect it. A lessening of the contingency deduction lowers the security and the years' purchase, and an increase of the deduction raises them. The process of applying this method of valuation is much simplified if any particular quality of the property is allowed to influence the right factor. The commonest mistake of the inexperienced is to make it modify the

wrong factor. The amount of accommodation affects primarily, not the security, but the rent. Such also are the influences of the proportion of rates and taxes—the accessibility, the economy of planning, water supply and drainage, and the general competition for the class of property. On the other hand, there are circumstances which operate mainly to affect the security and the years' purchase. In a secure property, it must be said, the condition of the premises, their convenience and desirability when the rent limit has been reached, their newness and freedom from decay, their general lettability, the circumstance of an improving neighbourhood, all will improve the chances of the maintenance of the income, and so favourably affect the security. There are, however, times when these advantages do find expression in terms of increased rent. In such cases the advantage of extra security disappears, and the value must guard against taking account of the same thing twice over. To every class of security there is an appropriate degree of risk, which is conveniently represented by an appropriate percentage of income. Such percentages naturally progress by steps, as from 3½ to 4, or 5 to 6; but the desirability and security of the investment may vary much more gradually within these figures. It is inconvenient to say, even if a value could presume to be so precise, that an investment is secure enough to be worth 5.15 per cent., and then to calculate at that rate. Inwoods would run to many volumes to supply the tables alone. But a security which stands in the valuer's estimation somewhere between two recognised percentages—as, for instance, the improved security of an investment, or an increase of the contingency provision until it may fairly be valued on the basis of the lower rate. This is a principle that is quite frequently overlooked. I once had to discuss the valuation of some fifty freehold cottages. After a careful calculation of probable outgoings and lesses by voids, it appeared that an allowance of 35 per cent. of the gross income was sufficient to cover them—a deduction which left the net income at £290. In my view of the class of property, I considered it right, with such an allowance, to capitalise at fourteen years' purchase, obtaining a figure of, say, £4,200. The valuer opposed to me protested that my deductions were too low, and produced his client's accounts for ten years to show that the average net income derived from the property was only £210 per annum as against my £300. The £210 corresponded to an allowance of 55 per cent. of voids, losses of rental, and collection expenses. I was prepared to adopt this figure; but I had to point out that in making such an allowance from the gross income as would practically insure the net income on a ten years' average test, I must regard this lower income as substantially secured and capitalised at 5 per cent. On working out the figures, the result was, in fact, the same point secured, however, a novel one and did not for some time make the appeal I hoped. The basis of the position, I need hardly say, was this: If a man capitalises an income derived from poor-class property on a table appropriate to that class, it is assumed that he regards that property as held with all the risks, trouble, and disadvantages attaching to it. This view is the sole justification for the expectation of a high return on capital invested. If by whittling down the income by allowances for this and deductions for that, a point is reached at which, by no mischance at all can the net income fail, and no effort at all is necessary to obtain the income, then it should be treated as secured accordingly. The rate proper to a perfectly secure investment has been the subject of some ingenious calculations. By taking the total amount of capital invested over a very wide range of securities—mines, real estate, railways, industrial ventures, Government stock, and other forms of investment, and by comparing with this total the total yield in revenue of all these securities together, it has been found that the resulting average rate per cent. was about 4. Among the securities considered there were included investments paying dividends from 200 per

cent. down to nothing at all, and the resulting average was 4. It would appear, therefore, that, at the time to regard a per cent. as a datum rate for very secure investments, and to regard the adoption of a higher rate of return by the market as an indication of imperfect security, while the adoption of a lower rate would signify full security, together with some other qualities of attractiveness. An interesting example of the relation of rent and security as factors in valuation is furnished by a consideration of the levy of duties under the Finance Acts 1894 to 1910. It will be recognised that an important part of the process of valuation is the determination of the amount of deductions necessary to arrive at income from rent. These deductions usually consist of regular payments made periodically, as rates and taxes and insurance, or of payments made irregularly at uncertain intervals, but allowed for at a certain and definite rate as reparations. In all such cases the deductions are made from the gross annual produce of the property, and their magnitude, so long as it lies within reasonable limits, tends to reduce the income, and does not affect the security and years' purchase. There are, however, other deductions which usually certain in incidence, but very uncertain in point of amount and time, and of these the taxes to be levied under the authority of recent legislation are typical. So far as these are calculable in their amount and the time of their happening, they will no doubt be allowed for by their annual equivalents as charges against the income derived from the property. But, if, however, the amount, the time of incidence is not determinable, they must be regarded as diminishing the security for the continuance of the level of income, and to that extent they may be expected to reduce the years' purchase. The market in such cases gradually accommodates the years' purchase to the new conditions, and this is what may be expected to happen. Few valuations can be found who would regard a security of income as a static application. Many hold it is impossible to value certainly within 5 per cent. The reason is obvious. Value is a thing continually fluctuating. On the one hand, it depends on long-continued and gradually operating stresses of a political, social, or commercial nature. On the other hand, it is dependent on capricious and fickle influences that vary from day to day, fashion, some fortunate accident, an idle market, or the vagaries of the latter variability, of which one can only guess how, cannot be estimated or allowed for in relation to any individual price should ever be quoted as an indication of a market. The real indication, as everyone here knows well, is obtained by multiplying the number of transactions observed. Casual variability has then the opportunity to cancel out. In the figures, the variations that extend over a considerable period of time, and include a considerable variety of circumstances, that conclusions may be drawn which will safely indicate the trend or position of the market. The essence of valuation—and I recognise that I am uttering a commonplace—is comparison. To place a property in the company of its likes, and then to regard its individual distinction in relation to them, is the practical effort of every valuer. Usually the process presents only the ordinary difficulties of selection of the genus, and the further difficulties of the estimation of the special qualities or defects in that genus. There are, however, many cases, which, as they stand, fit in no category where the properties must be reduced to their common parts with the view of finding, if possible, proper categories for the comparison of these. Such are institutions, mansions, great works, and factories. The great majority of the cases with which the valuer is concerned relate to land and land and buildings in various combinations. It thus becomes of very great importance correctly to appreciate the nature of the component parts and the relation of these one to another. I propose, therefore, to present for consideration some series of ana-

lysis of the relations of these elements. The movement of the value of land is one of the most regular and gradual. Commencing at a practically negligible prairie value it proceeds by imperceptible gradations through a value as common or waste land, woodlands, to a value as agricultural land, again increasing to an accommodation value, to a low building value, and so on, in certain instances, to a high building value. Subject to a consideration which will be introduced later on, the history may be regarded as a continuous rise.

So far the simple case of bare land has been illustrated. Now consider the effect of development upon this rise in value. Attention must, however, first be drawn to two important principles. The first of them is, I believe, in direct contradiction of a very widely-held view. It may be stated shortly thus—that the value of a piece of land and of the building erected upon it is not necessarily or generally the sum of the value of the land and the value of the buildings taken separately. Another opinion forms the foundation of much practice, but I hope to show that of itself it is fallacious.

An example will illustrate. A piece of land capable of development for building is worth £10 per annum, and being uncovered may be valued at £200 in fee. This is the value of the freeholder's interest. A lessee takes it for a long term of years and erects upon it a building at an ordinary market cost of £500 with a view to realising on completion of the building. The building being completed, he can sell, and can obtain £550 for his lease; the extra £50 being paid by a purchaser who escapes the trouble and risk attendant upon building speculation. At the same time the freeholder is able to sell his leasehold interest at twenty-five years' purchase, or £250. The value of lease and freehold together is thus £800. The value of the land alone is £200. The value of the building as measured by its cost is £500, and the sum of these figures is £700, or £100 less than the real value of the property. I anticipate a possible objection, by saying that the man who organises the building transaction must be expected to realise something more than the mere cost and have something which will be over and above the payment to the builder and architect. The ability to make a profit forms the basis of all trading, and without reasonable profit no man is willing to work. The explanation appears to be that every building erected on its site represents the loss of many other things. It represents a fact, the buildings and in a certain amount of knowledge, industry, enterprise, and risk, in addition. These last have their economic value, and, in the instance quoted, that value is represented by £100. They are, as will be seen, really attributable to the person who unites the building with the land, though the ground landlord is entitled to find that in some mysterious manner a substantial proportion of their value reaches his own pocket. This first principle is, however, of wider application, and before I leave it I must, with permission, offer another and very different illustration. Most valuers are familiar with the singular difference between prices asked for on building estates as being sold, and they are sold per acre before development, or by smaller units after it. This difference between wholesale and retail price, to what is it attributable? Let me ask this question. Has anyone ever considered a newly-formed road of newly built villa residences, and recalled the condition of the sites of the entrance when a few years before they were portions of fields and without roads? Has he considered the extraordinary difficulty which any one of the individual owners would have encountered had he ventured on the business of developing his own plot in isolation; his difficulty in obtaining reasonable terms from the big original owner, or, indeed, any terms at all; his expense in providing access for some existing road; his troubles about the sewerage of his plot; his difficulties with the local authority; his disputes with other similarly-situated adventurers; the conflicting claims, the hopeless confusion of their diverse intentions, the expensive necessity, the lawsuits and his

vexations; the final resulting want of method of harmony; and more than all, his inability to see, before embarking on the enterprise, whether it would ultimately lead him. Now the function of the speculator is to save all this to the building owner. His function is to endeavour to gauge the popular demand for building plots, and to risk his capital on the faith of his ability to meet it. For this risk, for the loss of interim interest on his money, and for the service of his time and brains he expects (and rightly) to be paid. His enterprise immensely simplifies the task of the building owner, to whom he presents (laying them exposed before him, as it were) the completed articles, for him to choose from at his pleasure. For so great a convenience the building owner will pay something over and above the value of the land and of the expenditure of money put into it—something which is the speculator's return on his enterprise. This something it is that constitutes the difference between the values of land taken wholesale and retail. And it is interesting to try and measure it. In the first place it is quite obvious that the difference between the wholesale and the retail price must ordinarily include every penny that the speculator has reasonably put into his venture, whether the money be spent on road-making and sewerage, on the allocation of lands to non-productive uses, or on legal or advertising charges. The test of this proposition lies in the experience of the speculator, has learned from previous transactions that he may safely go on with his scheme, and that the results will reimburse him all expenditure alone is insufficient. He is entitled to a profit on what is a venture with considerable attendant risk. And his retail price must cover his wholesale cost by a margin large enough to include both expense and profit. In normal circumstances it must also include interest on his capital expenditure over a portion of the time of development. Unless this happened in every normal case no speculator would continue to operate. Thus the amount of the difference is a measurable quantity. But now a caution has to be observed. The element of time, the increment creeps into the speculation at once. No sooner has one owner purchased and built than others are attracted in a degree increasing with the amount of development. The second corner is drawn, not entirely by the facilities placed at his disposal, but also by the fact that a predecessor has ventured on the same road. As it goes on, so, so that in increasing measure the building owners may help to create or to maintain the values of the neighbouring plots or to retard the diminutions in value that might be taking place. At any time, and in any special case, the proportions of value attributable to either of these influences can be gauged only by considerable knowledge, by dispassionate balancing, and by sympathetic insight into the conditions. The second principle commended to consideration is this—that the existence of a building on land, or of a restrictive covenant, tends to arrest the natural increase in the value of the land. One may appropriate a convenient term from another branch of science, and say that the natural number is value, and is damped by such a building or covenant. It is to be presumed that the building erected at any moment on a piece of land will represent the best and most profitable use that can be made of the land. But with the improvement in methods of construction, with changing conceptions of convenient building, with the extension of restrictive covenants, it is to be said that the majority of structures that ten years after they are built they are not of the latest, most profitable, type. In other words, ten years or so after a building is erected there are even better uses to which the site of it might be put; the land is not used quite to its best advantage. So long, of course, as there is any substantial value in the building it would not pay to erect this. An owner cannot afford every ten or twenty years to scrap his property because of some slightly-improved method of construction or development. So the land remains for the greater part of the life of the building—certainly increasing in value—but increasing less

rapidly than if it were free and uncovered. The effect of a building covenant is much the same. A lessee may have a valuable plot of land covered by quite inadequate buildings; buildings appropriate, perhaps, to the very different conditions that obtained when they were erected, but entirely inadequate to the modern possibilities of the site. It may be that both lessor and lessee know this. But the lessor cannot enter to make the change, and the lessee does not find it will pay him to do so, in view of an ever-shortening term of holding. In the meantime the covenants of the lease compel the maintenance of a particular class of buildings on land which has become far too valuable for them. In this case also the increase in value is damped or retarded by the circumstances.

In this connection it is necessary to consider the life history of the structure. Its greatest value qua structure is at or somewhere near its erection. For two or three years after completion it may slightly increase in value, as it consolidates and dries out and becomes more comfortably habitable. The process of deterioration then begins. It would be interesting to determine at what point in its lifetime a building has depreciated in value by one-half. Interesting, but almost impossible, as the process of depreciation is highly complex. There is the actual deterioration of the materials and workmanship, a process quite slow at first, but accelerating with the age of the fabric. There is the obsolescence of the architectural design as the advance of applied science and artistic taste suggest new treatments, or as legislation for the general advantage imposes or removes restrictive conditions. And there is the change that comes of growing unfitness to the environment. Obsolescence and unfitness proceed side by side with structural decay, though no doubt at a different rate of progress. It is unfortunate that in the nature of things anything like quantitative comparisons are impossible. The moment at which half-value is reached, or, indeed, any other proportion of value, is a matter of pure speculation. There is no means of measuring such a thing. The only means of certainty as the moment of death. The natural life of a building may be taken to have ended when it is so out of harmony with its surroundings that it will not let, or when the law steps in and condemns it.

To focus discussion I may perhaps be permitted to summarise the principles which I offer for consideration:

1. The tendency to exaggerate the importance of the tables in the practice of valuation, and in the teaching of that practice the place of the tables should be more subordinate.

2. Values are established by the operations of a comparatively small number of dealers, among whom experience has taken the place of tables.

3. Market value is a general deduction from a number of varied transactions, and in individual results may be misleading.

4. Valuation is essentially effected by comparison, first for resemblances to establish the class, then for distinctions to differentiate in that class.

5. It is more convenient to discuss valuation in terms of rent and years' purchase than by reference to opinions on the fabric.

6. The use of devices such as the special contingency deduction, whereby the value may correct errors due to the necessary use of exact rates per cent. on years' purchase is legitimate.

7. There is a degree of risk appropriate to every rate of income and years' purchase that is adopted it is not permissible to reduce the risk by excessive allowances.

8. The value of land and buildings in combination is not necessarily the sum of the values of the component parts taken separately. The difference is partly attributable to the enterprise of the person who combines them.

9. The difference between the value of land, considered as wholesale, and its value considered as retail, is the economic return to the person whose enterprise furnishes the convenience of the small parcel.

10. The obligation to maintain buildings, whether it arises from covenant or considera-

tions of economy, damps the rise in value of the site.

It is possible for a rising market to counterbalance the effect of a deterioration in fabric or of a diminution of a leasehold term, and for a falling market to counterbalance the effect of a physical improvement in the property.

THE SOCIETY OF ARCHITECTS' DINNER.

The twenty-eighth annual dinner of the Society of Architects was held on Friday night at the King's Hall, Holborn Restaurant, and was well attended. The President, Mr. George E. Boud, J.P., of Rochester, occupied the chair, and among those present were Lord Saye and Sele, Sir G. Laurence Gomme, Clerk L.C.C.; Sir George A. Riddell, His Honour Judge Rentoul, LL.D.; Mr. L. A. Athelney Jones, K.C., M.P.; Mr. H. P. Bulnois, Mr. A. D. Greatorex (President of the Institution of Municipal Engineers), Mr. H. A. Bartlett (President of the Institute of Builders), Mr. J. S. Holliday (President of the London Master Builders' Association), Mr. C. W. Ball (President of the Quantity Surveyors' Association), Mr. Walter C. Williams (Mayor of Southwark), Mr. J. B. Corby (Mayor of Stamford), Mr. J. Arscott (Master of the Tybers and Bricklayers' Company), Professor W. A. Scott, Mr. W. W. Thomas (Past President), Messrs. E. C. P. Monson and Percy B. Tubbs (Vice-Presidents of the Society), Mr. E. J. Partridge (Hon. Treasurer), Col. F. S. Leslie, R.E. (Hon. Secretary), Mr. G. A. T. Middleton (Hon. Librarian), Mr. Ian MacAlister (Secretary R.D.A.), Mr. F. R. Vernon (Secretary A.S.), Messrs. J. H. Adams, Max Clarke, John Darch, R. Cecil Davies, J. H. Dyer, J. S. Gibson, N. W. Harrison, T. E. Lidiard James, A. R. Jemmett, E. M. Leest, A. S. R. Ley, R. J. Lovell, C. Luff, E. Monson, C. Stanley Peach, E. J. Sadgrove, J. W. Sanderson, Alban Scott, B. R. Tucker, F. J. Westwood, H. W. Willis, A. A. Wilson, C. McArthur Butler (Secretary etc.).

The loyal toasts having been given from the chair, and heartily responded to, Sir Laurence Gomme proposed "The Houses of Parliament," remarking that in any method of devolution which might be adopted to lessen the pressure which now choked legislative progress, it was to be hoped that steps would be taken to remove from discussion by the whole body of Members in each House such questions as whether a tramway should, or should not, be permitted to pass through an obscure London street, and, if allowed, what form of traction should be adopted. With the toast he coupled the names of Lord Saye and Sele and Mr. Athelney Jones, M.P., who suitably responded. The toast of the evening, "The Society of Architects," was entrusted to His Honour, Judge Rentoul, who congratulated the members on their continued progress, and in their name formally presented to the President the gold medal conferred upon him in recognition of his indefatigable labours for the Society and the cause of Registration during his four years of office.

In responding, the President, who was received with musical honours and hearty applause, thanked the Council and members for the presentation of the gold medal, which he should ever cherish as his chief possession and as a reminder of the four strenuous years during which he had the honour of occupying the chair. He continued:

Once more it is my great pleasure to be able conscientiously to congratulate my fellow-members upon the continued progress made by the Society of Architects. For many years now our annual reports have placed on record, year after year, a steady and consistent increase in the membership, and also a steady and sure development of its financial resources; and notwithstanding the suspension of our activities during several months, in honourable conformity with the spirit of an agreement entered into between the Council of the Royal Institute and ourselves—a suspension which seriously handicapped us—our progress during the last eighteen months has beaten all previous

records. Of course, the abnormal success of our efforts during that period may be to some extent attributed to the fact that we entered into possession of our new home in Bedford-square in September, 1910—a home which stands in one of the most convenient and readily-accessible spots in London, and which responds to the accommodation of the needs of the official needs, many of the comforts and conveniences of a social club, and your Council fully anticipate still further large additions to our ranks, as these advantages become more generally known and appreciated. Numerically and financially we are advancing very rapidly year by year, and I venture to say the strong and powerful position to which the Society has now attained speaks well for the popularity of the course with which it has for so long been identified. Members are now entitled to ask what progress I have to report in regard to the Registration movement since our last annual dinner, and in reply I shall be obliged to say, "None whatever, and this is due to no fault of mine, but to the want of personal action. I am quite prepared to take the blame upon my shoulders, although, at the same time, I may complain of the fact that in these days of unrest the path of a mediator is a very hard and difficult one. The subsequent approval of my action both by my colleagues on the Council and my fellow-members is an assurance that you believed my action prompted by an honest inward conviction that I was working towards the advancement of the cause we all have at heart, and I am still convinced that the course I adopted was (had paltry pride and prejudice not to be taken into account) the only one offering any promise of ultimate success, which was, at the same time, consistent with the previous expressions of opinion. For more than a quarter of a century, as pioneers in the Registration movement, the Society had stood and worked alone, in the face of the most persistent and unfair opposition, in which our opponents brought to bear every conceivable weapon of abuse, irony, and ridicule, but never ceased to persevere. In the early years of 1910 we had, however, so far advanced that we had just completed a new revision of our proposed Registration Bill, and had the necessary arrangements for its immediate presentation in the House of Lords, thanks to the kindness of Lord Saye and Sele. But to thoroughly understand the true position of affairs at the moment it is necessary to recognise the fact that an entirely new situation was created when the Council of the Royal Institute pledged themselves to adopt a Registration policy, for, during the whole course of our existence we had consistently been expressing the opinion that such was their duty, and that should they take up the question, and submit a fair and reasonable Bill, we should be prepared to loyally support them in their efforts to secure its passage through Parliament. Under the circumstances, three courses were open to us—firstly, to have our Bill presented at once in the House of Lords, as arranged; secondly, to suspend operations for a time and await the production of the Royal Institute's third Bill, and to endeavour to open negotiations with the Royal Institute at once, with a view to the production of a joint Bill. Of these, the first, from a tactical point of view, was a reasonable one, for in all probability the Bill would, in the House of Lords, have reached the Committee stage, and its opponents would have been compelled to formulate their opposition, clearly by way of proposed amendments, and, whatever the result, matters would thereby have been materially advanced, for the situation would have been clearly defined, and we should then have been able to accurately locate the position, and gauge the actual fighting strength of the enemy; but in the face of the fourth course, and the expressions of opinion. I felt it was a course we could not honourably follow. The second would have been extremely foolish, as, after waiting probably for many years for the production of the Royal Institute's Bill, we might find that, in the interests of the Society and of all others concerned outside the ranks of the Institute itself, we should have then compelled to oppose it. As a matter of fact,

subsequent events proved that we were right in this assumption, for the claim put forward by the Royal Institute's representatives, in regard to the composition of the registering and administrative council under the Act, was one which the Society, as an independent body, could not then, nor ever will, agree to. This really led to the suggestion of a "gametion," as a way out of the difficulty, because it is now recognised by the responsible leaders of both bodies that neither can possibly carry a Bill through Parliament if opposed by the other. There remained the third, and what, I submit, was the only sensible and honourable course, and this was adopted. On November 1910, I wrote Mr. Leonard Stokes a personal letter, pointing out very fully my views of the situation, and suggesting a joint meeting of representatives to consider it, undertaking, should the suggestion be favourably received, to forward an advance copy of our revised Bill, in order to facilitate discussion. Mr. Stokes and the members of the Royal Institute who were consulted were favourably impressed by the proposition, with the result that a series of joint meetings extending over twelve months were held. While, for obvious reasons, added the President, he could not speak about the qualifications of our own representatives on that joint committee, he ventured to suggest that among those who presented the Institute were some of the most astute, practical, and farseeing minds in the profession—gentlemen perfectly capable of protecting the interests of the Institute they represented, and in whose keeping its honour and dignity were perfectly safe, and who, while keeping their eyes definitely fixed upon the object they had in view, unhesitatingly admitted the justice of many of our contentions, and met us in a broadminded spirit, with a view to finally settling a very vexed question. Of course, only those engaged in the actual discussion can possibly know all the reasons which led to the adoption of the scheme ultimately evolved, which included a fusion of the two bodies; but that it was a fair and reasonable compromise, and that the fact that opponents on both sides objected to it for exactly the same reason—that is to say, both sides claimed that they were making very great concessions and receiving very little in return. Well, most of you know how it was received; how, after being approved by the councils and members of both bodies, a legal hitch occurred in regard to the power of the Institute to enter into such an agreement, how its Council immediately set to work upon an amendment to the Charter, with a view to surmounting that difficulty, and how it was a second time submitted for approval in a meeting at which about a seventh of the Institute's members were present, and which was obviously packed by an organised opposition consisting of junior members. It was referred back, ostensibly, upon a side issue about which we care nothing, and by what was practically an adverse vote the twelve months' ceaseless thought and study given to the subject in all its bearings by their duly appointed representatives and nominal leaders, has been a waste of time and energy, and their hindminded and farseeing policy has been left in confusion, and this in the face of their President's remark at our last annual dinner, that "if there is any honour in the Institute the agreement will be carried out." Well may it be said that "defeat in some causes is more honourable and glorious than victory." But the progressive movement was never carried to a successful issue without some sacrifice; but the grand ideal of our leaders, who aimed at nothing less than the establishment of that professional unity within one strong institution and under one banner which would have rendered all ethical and educational reforms much easier and would, at the same time, have positively secured that unity of action in regard to Registration which is essential to success, was, apparently, by some of the younger men in the profession, not considered worth even the sacrifice of a little petty pride, for with the arrogance which usually accompanies immature rank they had no difficulty in assuming that they were perfectly justified in committing themselves to a wretched policy before they had even

heard the other side of the question. I am convinced that all thoughtful members of the profession were both sorry and surprised to find that many members of the very class which had everything to gain and nothing to lose under a scheme of Registration, had so readily allowed their vanity to be exploited, by two or three irresponsible individuals, whose egotism constituted their one and only claim to leadership in the matter. The present position is an eminently unsatisfactory one, for I assert, without hesitation, the real voice of the Royal Institute has not yet been heard upon the question. Further progress in regard to federation, under existing conditions, a very doubtful quantity; but in any case we are still prepared to continue negotiations with a view to the production of a joint Bill. During the last few years a much more conciliatory spirit has existed between the councils of the two bodies, and our recent meetings have done much to foster and develop that spirit, and whatever may be the ultimate fate of the subject matter we had under consideration, there will always remain that mutual appreciation of each other's honesty of purpose in working for what each conceives to be the best interests of the profession, and he sincerely hoped that it may be the pleasure of both to work together in the spirit, and with perfect harmony, for the grand purpose of maintaining the honour, dignity, and general standard of ability and efficiency within the profession at the highest possible level.

Mr. Percy B. Tubbs, in proposing the toast of "Our Guests," remarked that they much regretted that Mr. Leonard Stokes, the able President of the Royal Institute of British Architects, was not able to be present as he was last year; but, as they all knew, he was now in Winnipeg, acting as assessor in a highly important competition.

In replying to the toast, Mr. J. S. Gibson referred to the able, clear, and concise speech of the President, whose regret and disapproval he shared that the work of the joint committee, which had been set on foot in 1908, had been lost, owing to the action of the younger men. Mr. A. Needham Wilson also replied, as to the Registration Bill, the Society had, he considered, taken up a perfectly logical position, and had pursued their aim in an absolutely fair manner. For many years it had been manifest that the profession must be able to give to the public the assurance of giving them legal recognition and Registration—a matter which to members of the profession was of vital and paramount importance. He had himself been blamed in many quarters for the attitude he had taken up, but he was absolutely unrepentant and was determined to maintain that position unswervingly.

The proceedings were brought to a close by the singing of "Auld Lang Syne."

SOME PRINCIPLES OF PROFESSIONAL PRACTICE AND A CODE OF ETHICS.

Mr. C. M. Archer Butler, F.C.I.S., Secretary of the Society of Architects, pointed out, in his reply to the recent discussion on this subject, published in the Society's Journal, that he brought the matter forward at the request of the Council, with a view of eliciting opinions and criticisms in anticipation of further consideration of the subject by them. As the opinions expressed will in due course be submitted for the information of the Council, he confines himself chiefly to answering questions of fact. Before drafting his notes he held the same opinion as Mr. Lovell, in thinking that the Society should not put forward a Code of Ethics for the use of its members, without reference to any other architectural body; but, on further consideration, he came to the conclusion that a great deal more could be accomplished by co-operation. The proposed Board of Control is intended to deal with professional matters, and not to be the medium of setting the common law in action. The Society's Registration Bill provides for a central Council, and reserves certain powers for dealing with professional misdemeanours, thus implying the existence of a code of ethics.

The regulations of the Institution of Civil Engineers on this subject consist of six clauses relating respectively to the source of remuneration, illicit commissions, undisclosed interests, improper soliciting, and payment on behalf of clients. The first suggestion is that there should be two documents, one a schedule of general principles of practice, and the other certain regulations arising out of these principles, defining unprofessional conduct. Several instances have occurred of architects being invited to tender for work on the basis of fees. He agrees with Mr. Collard that, from a personal point of view, it is perfectly proper that an architect may not be desirous of securing individual honours; but the slight to the profession, as a body, remains the same when they are not conferred on the deserving individual.

In regard to the scale of charges, possibly the difficulty might be met by a sliding scale or similar arrangement. The expert services referred to are those of the architect, who should place his own value upon them. The reference to experts naming prices in competition with each other only applies to tendering in regard to fees. With respect to advertising, the Secretary is of opinion that advertising, directly or indirectly, must either be discontinued in any form, or be left alone. The question of anonymous communications to the Press does not refer to editorials or comments by an editor who happens to be also an architect. The Secretary cannot agree with Mr. Collard that an architect is obliged to accept a commission if he does not wish to, and he does not think a law limiting the practice of architecture to qualified men would in any sense be an injustice to a genius. It is very difficult to imagine an unequalled architectural genius.

Mr. Seth Smith's remarks will be of the greatest possible practical value, and in regard to the Society publishing the ethical codes issued by other architectural societies abroad, the one put forward by the Secretary is the best sound one. The proposal for a central Board of Control is not intended so much as an addition to any existing organisation as a federation of their representatives. Mr. Martin speaks from an engineering standpoint, and has already dealt with the matter in his interesting presidential address. The Secretary agrees that the interests of two professions are a large extent identical in this matter. Those who, like Mr. Ackerman, have studied the printed documents relating to the question of etiquette in the medical profession, will share his astonishment at the detailed way in which this matter is dealt with.

He agrees with Mr. A. Allan H. Scott that very frequently the architect places the question of fees last, but it is one of those very practical questions which have to be dealt with. He has always been in favour of federation as applied to the architectural profession, and is very much in accord with the views of Mr. Freyberg in regard to the duties of a professional man to his Society, and it is obvious that if every member held the same views, it would be a great step towards the advantages of the societies concerned and also of the general public. Mr. Butler is in sympathy to some extent with the views expressed by Mr. H. Guichard Todd, though he cannot see that there is anything degrading in a suggestion for a schedule of principles and a code of ethics in connection with the profession of architecture, and he has expressly pointed out that the regulations laid down in any code must not be assumed as a denial of the existence of other points equally important. He is glad, however, to find one of the speakers dealing with the matter from the point of view of the artist.

The writer regrets that Mr. Middleton was prevented by absence abroad from attending the meeting, while expressing his opinions personally; but as a member of the Council, Mr. Middleton will have an opportunity of doing so at a later date. In regard to Mr. Haywarth's remarks on the ownership of drawings, the fact remains that the architect must give up if demanded by the client, and the only way out of the difficulty is to get the law amended. Mr. Hayward's reference to the drawing illustrates the difficulty of limiting it,

if the principle is once admitted. The Secretary has received a number of communications both from inside and outside the Society, tending to show that the question is considered to be one of considerable importance, and he hopes that those members who have not yet read the introduction to the discussion will do so, and communicate their views on the matter for the information of the Council.

FAULTS IN THE THEORY OF FLEXURE.*

By HENRY S. PRICHARD, M.A.M.M.S.C.E.

(Continued from page 593.)

SECTION IV.—BUCKLING OF WEBS AND FLANGES.

The ordinary theory of flexure, besides being in some respects faulty, is incomplete in that it does not indicate the buckling which under certain conditions takes place in the webs and top flanges of certain types of beams. This phase of the subject is susceptible of further analysis, but the methods of dealing with it will probably always remain somewhat empirical.

When a flange is supported at such intervals that the compression is nearly constant from point to point, the practice of limiting the intensity of the compression to that allowed by good column practice cannot be much in error. When the compression flange of a beam simply resting on end supports is laterally supported only at the ends, the difference from a column in having the compression increase toward the point of maximum from zero at the ends, instead of being constant throughout. Under these conditions, the tendency to lateral deflection is somewhat less than it would be if the flange was a column. In usual cases, for beams of constant cross-section, the length of the equivalent column might be taken as ten per cent. less than the length of the beam, between end lateral supports, without undue risk.

In deep beams with thin webs the tendency to buckle is not confined to inclined and vertical directions, nor does it occur only at the ends and point where the loads and reactions are concentrated. There is likewise a tendency to buckle in a horizontal direction from direct compression at points between the neutral axis and the compression flange, and this tendency increases toward the point of maximum bending moment. The tendency of compression, in lines inclined at 45 deg., to buckle the web is offset, in part at least, by the contra tendency of tension at right angles thereto to take out buckles.

At points where the web is stiffened to resist concentrated loads and reactions, the stiffeners, if properly arranged, receive direct compression, but at other points the function of stiffeners is, as their name implies, simply to stiffen, that is, to increase the resistance of the web against lateral deflection.

The reinforcement of the webs to prevent crushing and buckling at points of concentrated loads is a necessary feature, and is sometimes advisable in rolled beams, especially in some of the recent shapes referred to in Section II, but the stiffening at other points, while often necessary in built beams, is hardly likely to be needed in rolled ones, as the ratio of web thickness to depth is probably sufficient in beams of the proportions thus far rolled to avoid this necessity. Built beams, or plate girders, as they are usually termed, have so many special points that a discussion of their details is reserved for a separate paper.

SECTION V.—FAULTY APPLICATION OF THEORY.

In addition to making a provision in designing for faults and omissions in the ordinary theory of flexure, engineers should guard against faulty application of the theory. It is a common practice to use a single unsymmetrical section, such as an angle or channel, as a beam, and to compute its nominal strength by the theory of flexure. Actually, the theory of flexure does not give the stress in such beams. Take a channel, for

*To be read before the American Society of Engineers, May 1.

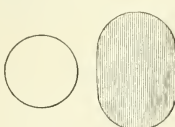


FIG. 5A.



FIG. 5B.

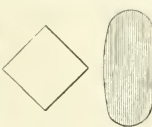


FIG. 5C.



FIG. 5D.

instance; the loads and reactions are applied in the plane of the web, as in Fig. 5A, the flanges receive their stresses from the web eccentrically, the intensity of the stresses is correspondingly increased, and the channel is warped in deflecting; while, if the loads and reactions are applied at the centre of gravity of the channel, as in Fig. 5B, there is a tendency to bend the web, and develop aerious complex stresses, in addition from those computed from the ordinary theory.

It is generally best to avoid the use of unsymmetrical sections as beams unless connected in symmetrical pairs or otherwise laterally supported. When they are used it should be with a liberal allowance.

In ordinary practice, the stresses in beams

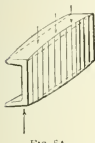


FIG. 5A.

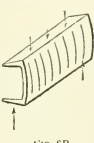


FIG. 5B.

are computed for direct stress in the extreme fibre and shearing stress at the neutral axis; yet, according to the theory of flexure, the critical points in beams under concentrated loads may lie between the neutral axis and the extreme fibre. As an illustration, consider the case of the 30in. girder beam, Fig. 7, under a load of 439,000lb. concentrated at the centre of a simple span of 79.64in.:

In these conditions, the shear per square inch at the neutral axis is 12,000lb., and the extreme fibre stress is 16,000lb. per sq. in., but the direct stresses at the foot of the fillet, 2.4in. from the top of the beam, are: compression 18,600lb. per sq. in., and tension, at right angles to the compression, 5,220lb. per sq. in. (and, vice versa, 2.4in. from the bottom of the beam). If the ratio of lateral compression to longitudinal extension is one-third, these compound stresses will produce the same linear compression as would be caused by a simple compressive stress of 20,400lb. per sq. in., and any shear of more than 142,300lb., at a cross-section where the extreme fibre stress is 16,000lb. per sq. in., will produce linear strains greater than would be produced by a simple stress of 16,000lb. per sq. in.

In making these computations, I was found to be 8194.3; m , at neutral axis = 309.12; m , at foot of fillet = 254.35; and q , at foot of fillet = 9.74lb. per sq. in. (when Q is 219,500lb. and 6,400lb. per sq. in. (when Q is 142,300lb.).

The maximum direct stresses at foot of fillet were found by the usual equation:

Maximum direct stress = $\frac{1}{2} f y = \frac{1}{2} q + \frac{1}{2} f y$, in which $f y$ is the horizontal stress at the point where the direct stresses are required.

SECTION VI.—OVERSTRAINED BEAMS.

The theory of flexure, even after allowing for its faults, is only strictly applicable within the elastic limits of the material. The elastic limit, even for specimens from the same melt of steel, will vary greatly, according to the amount of work put on them in rolling, and the original elastic limit, that is, the point where there will be a slight permanent set, is likely to be very low on the first application of the load. There is, however, a point in wrought iron and in soft and medium steel (known as the yield point, and often called the elastic limit), which is well marked in

direct tension and compression tests, at which the metal, which before has shown only slight imperfections in elasticity, begins to flow rapidly.

Many experiments have shown that imperfections in elasticity, indicated at stress intensities below the yield point in iron and steel strained to the yield point, disappear, after a rest, on subsequent applications of the load, the explanation being that the original imperfections were caused by initial internal stresses which were removed by overstraining.

There has been much confusion with regard to the elastic limit, and it is not possible to

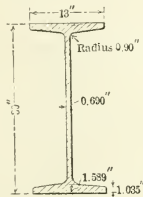


FIG. 7.

tell from some reports of tests of beams whether the elastic limit recorded was simply an imperfection which the first loading would correct, or whether it was the critical elastic limit. It would be well in all doubtful cases, after beams under test loads have shown some permanent set and before testing them to destruction, to let the loads removed and the beams rested, after a rest.

Solid sections, such as pins, can, according to the theory which considers the effect of overstraining, develop, with a slight and almost inappreciable permanent set, a considerable permanent strength, in excess of that indicated by the ordinary theory of flexure. If a horizontal pin without internal stresses is strained to the elastic limit by a vertical load, the intensity of the stresses decreases almost uniformly from the outer fibres to the centre, but if the load is increased, the overstrained fibres toward the top and bottom deform so easily, as compared with the others, that, instead of the stresses decreasing uniformly from the extreme top and bottom toward the centre, the metal for quite a distance from the top and bottom, if the load is sufficient, will be strained to the elastic limit; thus greatly increasing the capacity of the pin in the direction of the load. If the load is gradually taken off, the fibres toward the top and bottom will be entirely relieved of their stress before those nearer the centre, after which tension will be developed in the top and compression in the bottom, forming a couple balanced by compression between the top and the centre and tension between the bottom and centre; further, the pin will have a permanent deflection. If the load is again applied, the effect of taking off the load will be reversed, without any additional overstraining, unless the original load is exceeded. If the direction of the load is reversed, the internal stresses will tend to lower the elastic limit of the pin.

There is another element which tends to enhance the permanent strength of overstrained beams like pins: When iron or steel is overstrained it becomes plastic, but resolidifies when the strain is removed. On the removal of the load, the change during a rest from a plastic to a solid state, at a temperature much below the solidifying point,

has an effect somewhat analogous to that of sudden cooling of soft and medium steel; it causes the metal to have a finer grain and a higher elastic limit.

Some experiments by Professor Thurston on lin. square wrought-iron beams, 22in. between supports and loaded in the centre, well illustrate the elevation of the elastic limit from overstraining. One of these beams showed some loss of elasticity under a load of 209lb., and an extreme fibre stress of 6,700lb. per sq. in.; yet it subsequently developed, as nearly as could be measured, seemingly perfect elasticity under a load more than eleven times as great.

It may be inferred that overstrained beams, especially those in which the metal has not been spread out too thin in the effort to obtain a large moment of inertia, will similarly develop considerable permanent elevation of the elastic limit, provided they are proportioned and laterally supported so that they will not buckle; but suitable tests are needed before this can be regarded as a certainty.

Beams are peculiarly susceptible to initial internal stresses, and, therefore, to imperfections in elasticity within the yield point, as the flanges, being thicker than the webs, are yet hot after the webs have cooled, and in cooling compress the webs horizontally and are themselves brought into tension. If the upper and lower halves of a beam were independent tees, they would bend in cooling, so that the flanges would be on the inside of opposite curves, but, being joined, they are prevented from curving and, instead, develop in the web vertical tension at the ends and vertical compression at the centre. In the days of wrought-iron beams it was not uncommon to have their webs split horizontally at the ends from such tension.

(To be concluded.)

Mr. C. J. Cross, surveyor to the Kirkham Urban District Council, has accepted an appointment in the Department of the Inland Revenue at Lancaster.

A Board of Trade inspector examined on Friday the new line of the North-Eastern Railway Company from Selby to Goole. The line was opened for passenger traffic on Wednesday.

The death is announced of Mr. W. J. Price, who recently retired from the position of surveyor to the urban district council of Burnham, Somerset, and who had since been a member of that council.

Major J. Stewart, R.E., Local Government Board inspector, has held an inquiry at Clacton with reference to the urban district council's application for permission to borrow £22,000 for the paving of promenades on the Cliff.

The new spinning section at Leeds University, designed by Mr. Paul Waterhouse, M.A., F.R.I.B.A., was formally opened and presented to the University on Friday by the Master of the Clothworkers' Company (Mr. F. G. Fitch).

A new workhouse infirmary is about to be built at Rocklands, Norfolk, for the Weyland Board of Guardians. Mr. H. J. Green, of Norwich, is the architect; Mr. Reuben Shanks is the builder; and Mr. S. G. Barker, of King's Lynn, the clerk of works.

Mr. Hugh H. Scott-Willey, A.R.I.B.A., only son of Dr. Willey, of Somersfield, Reigate, was married at Conisdon Church, Surrey, on the 25th ult., to Miss Janet Gwendoline, second daughter of the late John Roberts, Homewood, Hinton, Cheshire, Bath, and of Mrs. Roberts, late of Lochinvar, Reigate.

Foundation-stones of the new buildings of the Wesleyan West London Mission in Kingsway were laid on April 25, when it was announced that £50,000 of the £60,000 required had been subscribed. The architects are Messrs. Gordon, Ganton, & Finsbury House, E.C. The reinforced-concrete work is on the Kahn system.

At Scarborough, Mr. A. G. Drury, M.L.C.E., an inspector of the Local Government Board, has held an inquiry into applications by the corporation to borrow sums of £2,500 for drainage and £2,500 for the improvement of the corporation have acquired from Mr. G. L. Beesford, £500 for dealing with a landfill at Holbeck Gardens, and £677 for works of street-improvement in St. Thomas-street, where property has been demolished.

OBITUARY.

We regret to announce the death of Sir John Taylor, K.C.B., F.R.I.B.A., for many years the principal architect in H.M. Office of Works. Sir John Taylor, who died on Tuesday at his residence, Moorfield, Surbiton Hill, was in his seventy-ninth year. He was born in 1833, the son of Mr. William Taylor, of Warkworth, Northumberland. He entered the Office of Works in 1850, and became a Fellow of the Royal Institute of British Architects in 1881. From 1866 to 1898 he was Surveyor of Royal Palaces and Public Buildings in the Office of Works, and was afterwards consulting surveyor. He was created K.C.B. in 1897. Among the principal buildings executed by Sir John Taylor in London were the new Record Office in Chancery and Fetter lanes, and the new Court Office in Whitehall, where he carried out, in conjunction with Mr. Clyde Young, the designs of the late Mr. William Young. He was also responsible for large additions to Marlborough House, for the Bankruptcy Courts and offices in Carey-street, the principal staircase and central exhibition-rooms at the National Gallery, Bow-street Police-court and Police-station, and the Marybone, North London, and South-Western Police Courts. Sir John Taylor was captain of the Royal Wimbledon Golf Club in 1883, and of the Home Park Club in 1905 and 1906. In 1860 he married a daughter of the late Mr. Henry Hadland. The funeral service will be held at St. Mark's Church, Surbiton, tomorrow (Saturday) morning, at eleven, and the interment will be at Brookwood.

We are also sorry to hear that Mr. Jonas James Bradshaw, J.P., F.R.I.B.A., the founder and principal of the firm of Messrs. Bradshaw and Gass, of Silverwell-street, Bolton, died at his house, Greenmount, Heaton, near Bolton, on Sunday night, aged seventy-six years. Mr. Bradshaw was one of the oldest architects in Lancashire; he had contrived many improvements in the planning and construction of cotton-mills, and had won many important competitions during the half-century he has practised in Bolton. For more than half that period his nephew, Mr. R. Gass, J.P., has been associated with him in his professional association. Among the recent works of the firm illustrated in our pages are Belmont Congregational Church, Bolton, given April 19, 1901; Leysian Mission Buildings, City-road, E.C., April 19, 1901, and Dec. 21, 1906; Thomason Co-operative Reading room, Bolton; Withnell Fold house, near Chorley, Lancashire; Manchester Stock Exchange, all published on page 19, 1904; business premises at Bradshawgate, Bolton; Baptist Chapel, Farnworth Teachers' Centre, Bolton, and Wesleyan mission buildings, Liverpool, all on February 2, 1906; King's Hall, Bolton; Co-operative Insurance Buildings, Manchester; Tiltson's premises, Bolton, and house at Bolton, all on December 21, 1906; Zion Memorial Church, Manchester, August 23, 1907; Congregational Church House, Manchester, August 23, 1909; and Stockport Central Library, December 9, 1910. The firm were among the six selected for the final competition for the Manchester Art Gallery, and their design was illustrated in our number for December 15, 1911. In 1886 Mr. Bradshaw joined both the Royal Institute of British Architects and the Manchester Society of Architects, in each case as a Fellow. From 1876 to 1882 he had a seat on the town council. He leaves a widow and four daughters. The funeral service was held at Unity Church, Deane-road, Bolton, yesterday (Thursday) afternoon, and was followed by cremation in Manchester.

Mr. John Barlow Badock, F.R.I.B.A., died on Thursday in last week at Hillcrest, Cliff Parade, Leigh-on-Sea, Essex, in his eighty-first year. He joined the Royal Institute of British Architects as a Fellow in 1870, and held the certificate of competency to act as a district surveyor in London.

Mr. George Henry Hopkinson has been appointed borough surveyor of Chotley at a salary of £200 per annum.

COMPETITIONS.

A BRITISH COLUMBIA UNIVERSITY COMPETITION.—At Victoria, British Columbia, a fortnight ago, a deputation of the British Columbia Society of Architects waited upon the Provincial Government to enter a protest against the terms of competition for the University Buildings at Point Grey, B.C. The members of the architectural profession were requested by the R.A.I.C. not to compete for the reasons that no independent assessors had been named; that the first prize was merged in the commission; and that no time limit had been placed upon the architect's residence and practice. Before the British Columbia Society sent their deputation to the Provincial Premier, repeated applications had been made to the Minister of Education, but without avail. The lack of technical knowledge shown in the conditions relating to the architectural features of the competition made it plain that the person who framed the conditions was grossly incompetent. In regard to the matter of assessors, it was felt that if the judges were no more competent than those who drew up the conditions of contest, it would be useless to spend time and money on the competition. The members of the deputation emphasised these points, and asked that in consideration of the extensive nature of the work, the prize money should be divided into five awards instead of into three, as suggested.

BRISTOL.—A town-planning competition is being promoted, which is intended to deal on broad lines with the whole of the environments of the city where building is likely to take place. The competition is being arranged by a special joint committee of the Bristol Society of Architects, the Somerset, Gloucestershire, and South Wilts Committee of the Surveyors' Institute, and the Bristol City League. The committee is at present engaged in drawing up the conditions of competition, which, it is hoped, will take place some time during the summer. It will not be confined to local competitors, but will be thrown open to the country generally. The conditions will be of such a nature as to insure the plans submitted being of such a character that they may be of service to the corporation, if they think fit to make use of them, like the town planning of Bristol is eventually undertaken. The conditions will follow the lines of the competition held in Halifax in 1911. The competitors will not be required to go into details, but to aim at a comprehensive scheme of planning, dealing with the necessary main roads, the alteration and widening of existing main roads, the provision of industrial and residential zones, and the provision of open spaces. Substantial premiums will be offered. The money for the fund is being raised by private subscription.

CALCUTTA.—The expert committee appointed by the Port Commissioners have awarded the premium of £3,000 offered for the best design for a new floating bridge over the Hooghly connecting Howrah and Calcutta, to replace the existing bridge built from Sir Bradford Leslie's designs in 1874, to the German firm, Maschinenfabrik Augsburg, Nuremberg, and have recommended the acceptance of their tender. The tenders ranged from £411,000 to £524,000. The German firm, for the bridge, estimated the cost of the bridge at about £550,000. The premiated design shows a bridge of nickel-steel, to be built in three spans, giving 200ft. of riverway in the centre and 500ft. of riverway on each side. The shore spans will be supported on solid ornamental abutments, and there will be two groups of pontoons at each side of the opening span in the centre. It will open on the Scherzer rolling bascule system. The bridge will be 60ft. wide, with a 12ft. footpath on both sides, and with room for a carriage-way on each side of the double tramway track in the centre.

CARDIFF.—In open competition for new grand stand, etc. for the Cardiff Rugby Football Club, the first premium has been awarded to Mr. Leitch, of Liverpool, the second premium to Messrs. R. and S. Williams, of Cardiff, and the third premium

to Messrs. Ivor Jones and Percy Thomas, of Cardiff.

HALE TOWN-PLANNING COMPETITION.—Referring to his circular letter dated February 8, 1912, the secretary of the Manchester Society of Architects regrets to say that the Hale Urban District Council now declines to make any alteration in the conditions. Each competitor has to purchase Ordinance sheets for the district at a cost of about 25s., and as these were last revised in 1908, he will have to go over the whole district and embody the numerous bulletins since erected. Competitors are also asked to estimate the total amount of their charges should they be successful. As the duties are, to a very large extent, at present unknown, this becomes an almost impossible task. There is no guarantee that any qualified assessor will be appointed, either to adjudicate on the plans or to advise the council. The competitors' committee approached the Hale Council before the conditions were issued, and as soon as the conditions appeared they pointed out to them the unfairness of the points mentioned above. The society is instructed by the council to inform us that these conditions are unsatisfactory; therefore members of this society must not submit, either directly or indirectly, any designs in the above-mentioned competition.

KING EDWARD VII. MEMORIAL AT HOLYROOD.—A further meeting of the Executive Committee of the Scottish National Memorial to King Edward VII. was held in Edinburgh on Monday. Lord Provost Sir W. S. Brown presiding. There was a numerous attendance, representative of the various districts of Scotland. The competitive designs and memorials were again examined, and afterwards an adjournment was taken to Holyrood Palace, with a view to considering the designs in relation to the proposed sites for the memorial. The selection of a design, or designs, for submission to his Majesty the King was deferred until a later meeting, the date for holding which has not been announced.

PADIHAM.—This competition for plans for the town hall and other municipal buildings at Padiham is mainly for the purpose of laying out the ground, and it is not the intention of the promoters to carry out much, if any, of the building scheme in the near future. As the only remuneration offered for the complete plans of all the buildings is two small premiums, the competitions committee have been endeavouring to induce the promoters to meet the special conditions, either by some guarantee for the employment of the successful architect, or by substantially increasing the amounts of the premiums offered. The promoters, however, cannot see their way to vary the terms already offered. The Manchester Society of Architects considers that these conditions are unsatisfactory, therefore members of that society must not submit, either directly or indirectly, any designs in the above-mentioned competition.

Our Illustrations.

WORKSOP COLLEGE CHAPEL, NOTTS.

Worksop College, one of the Woodard schools, was built from the plans of Messrs. Carpenter and Ingelow. Since the retirement of Mr. Ingelow, who left some notes for a chapel, Lord Mountgarret gave a sum of money for the erection of the chapel as illustrated in this issue. The chapel is 120ft. long, 36ft. wide, and 56ft. to the centre of the ceiling, and seats 450 persons. The chapel is connected to the school buildings by an ante-chapel. Since the opening, Lord Mountgarret has made a further gift of the stalls and panelling shown in the view. The builders were Messrs. Lowe and Sons, of Burton-on-Trent; the decoration of the ceiling was executed by Mr. F. A. Jackson; the sculpture and carving were executed by Mr. Paul Montford, R.B.A., and the clerk of works was Mr. F. Walker. Sir Aston Webb,

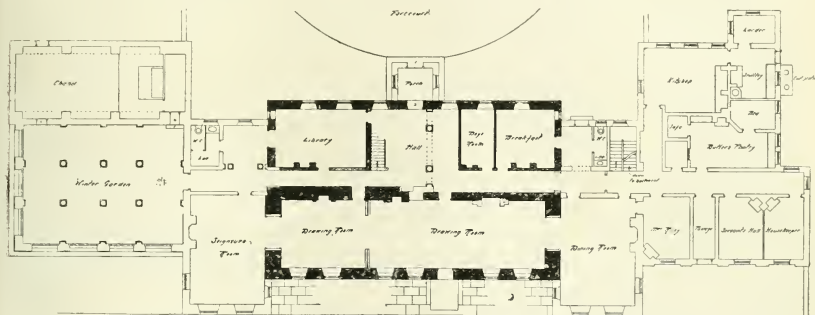
C.B. R.A., is the architect, and the drawing is on view at the Royal Academy Exhibition. **MANOIR DE LA TRINITE, JERSEY.** This house, now being built for Mr. Athelstan Riley at La Trinite, Jersey, is all new, with the exception of some of the walls of centre block. It was at first intended to cover the house with a very much lower roof, with granite gables, on the lines of an earlier house here. The design was so shown in a view of the other side of the house, showing the new gardens, which appeared in the R.A. exhibition in 1910. This design was abandoned, and the whole of the centre block has been covered in with a very steep roof in the old French manner, as shown on the drawing

of J. Raymond-buildings, Gray's Inn, London. The drawing is exhibited at the Royal Academy.

GOLD AND SILVER MEDAL FIGURE-WORK FROM THE NATIONAL COMPETITION EXHIBITION.

The examiners who dealt with the class of modelling the human figure in the round from life—Messrs. W. R. Colton, A.R.A., Fredk. W. Pomeroy, A.R.A., and Francis Derwent Wood, A.R.A., Hon.A.R.C.A. (Lond.)—reported that they were pleased to find a very striking improvement in this important section, although they deplore the unintelligent use of sandpaper on the surface of the plaster which appears in some of the

gold medal, for a shaded full-length drawing of a woman from the nude, accorded to Mr. Horace E. Quick, of the Clapham School of Art (L.C.C.) at Wandsworth, is of such merit as to leave no room for doubt as to the justice of the award. The judges were Messrs. George Clausen, R.A., R.W.S., Hon. A.R.C.A. (Lond.), Arthur Hacker, R.A., and J. Seymour Lucas, R.A.—forming, of course, a sufficiently distinguished jury to fully emphasise the importance of their remarks as to the advance in the quality of the work submitted in this section. We have reproduced this study on the right hand of our plate. The remaining subject is from an oil-painting of a figure from the life by Mr. David Jagger, of Sheffield Technical School,



THE MANOIR DE LA TRINITE, JERSEY.—Prof. REGINALD BLIMFIELD, A.R.A., Architect.

illustrated. The pitch of the roof is the same as that of the great roof of the house at Montainville (end of fifteenth century). The materials are local granite, and the roofs are covered with small Delabole slates, with lead hips, ridges, and finials. Professor Reginald Blimfield, A.R.A., F.R.I.B.A., is the architect, and the drawing here reproduced is shown in the Royal Academy Architectural Gallery, to be opened to the public on Monday.

"THE GREENWAY," SHURDINGTON, NEAR CHELTENHAM.

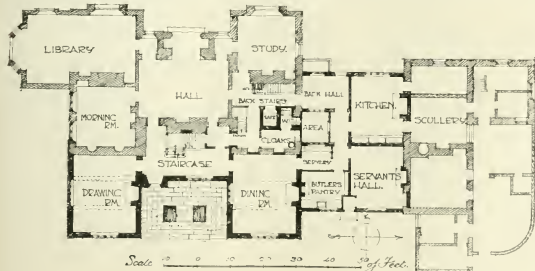
This house, which is now the property of the Rev. J. Sinclair, Archdeacon of Cirencester, has been largely remodelled. The whole of the south-east front of the house, as shown by the drawing, has been rearranged, and is entirely new. This side of the house was given up to greenhouses and back yards. The contractors for the work were Messrs. Collins and Godfrey, of Tewkesbury. Mr. F. O. Marchant acted as clerk of works. The architect was Mr. Ernest Newton, A.R.A.,

works submitted. A gold medal was awarded to Mr. Albert G. Power, of Dublin, whose statuette of a child, here illustrated in the centre of the accompanying plate, amply deserved this honour, the modelling being full of charm and faithful observation. Mr. Alexander E. Sutcliffe, of Leeds, won two silver medals—the first for a modelled anatomical figure of a man, which is shown on the top of our illustration, and the second for a seated figure of a girl, in a refined relief, modelled from the nude. The modelled figure in relief, from a cast in the round, photographed at the lower left-hand corner of our sheet, represents a charming study of a Boy and Goose, in which the artistic treatment of relief is well understood, the proper pose being obtained. A silver medal was given for this to Mr. Robert W. Keen, of Bristol. The examiners in this case were Messrs. S. J. Cartledge, A.R.C.A. (Lond.), H. A. Pegram, A.R.A., with Mr. Pomeroy and Mr. Derwent Wood. They bear witness to the striking improvement manifest in this useful class generally. A

to whom a bronze medal was given, the examiners (Messrs. George Henry, A.R.A., R.S.A., J. Seymour Lucas, R.A., and S. J. Solomon, R.A.) expressing a regret that they felt unable to award a silver medal in this class. These photographs were lent us by the Board of Education, from the Illustrated Report officially and so excellently published, with a list of all the prizes and reports.

COTTAGE HOSPITAL, WELLINGTON, SALOP.

This small hospital is being erected by the trustees of the late Mrs. Bowring, of Wellington, on a site of three acres in Haygate-road, within a short distance of "The Wrekin." The adjoining land to the south-west is being laid out as a recreation-ground, thus affording a permanent open space around the hospital. The building at present is for eight beds, though the administrative portion is sufficient for double that number, and the wards are planned with a view to such future extension. Although the site is extensive, the contours of the ground restricted the building area, and, in order to meet the requirements, strict economy in design had to be studied. The appearance of a public institution has more purposely been avoided, as it is felt that a more homely type of elevation is preferable for a "cottage" hospital. The general walling is 14in. brick, rough-casted, the roofs being covered with hand-made sand-faced tiles. Mr. Alfred Roper, of Wellington, is the builder, and Mr. Leslie T. Moore, A.R.I.B.A., the architect, whose plans were selected by the assessor in competition.

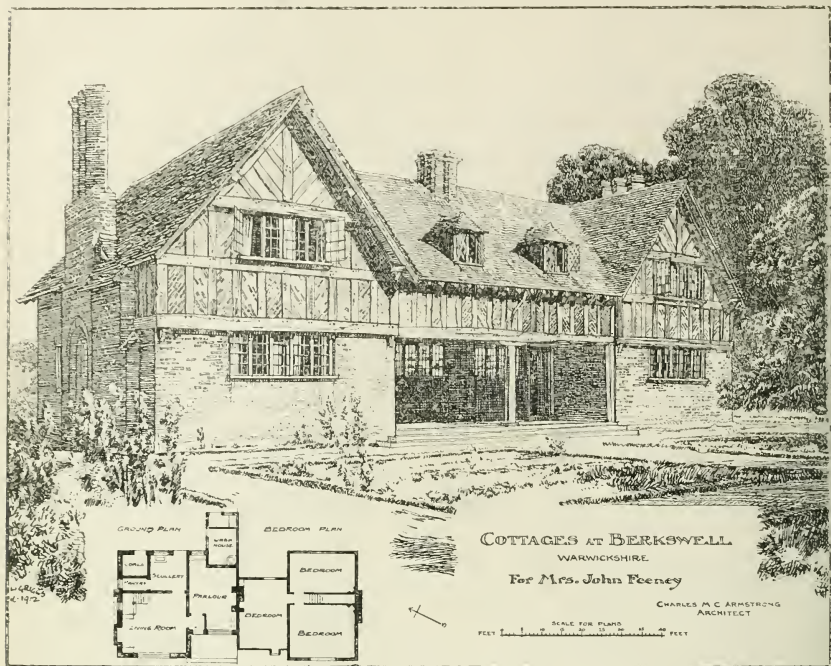


Scale 0 10 20 30 40 Feet.
GROUND FLOOR PLAN
New Work — Old Work —

THE GREENWAY, CHELTENHAM.

The city council of Coventry decided after much discussion on Tuesday to proceed with the advertising for tenders for the erection of new municipal buildings, and also to take steps for building a technical school on a site at Pool Meadow.

A report of the Housing of the Working Classes Committee of the London County Council states that the clearance of the Tabard-street area will involve the displacement of 4,552 persons, and the net estimated cost of the scheme will be £389,900.



COTTAGES AT BERKSWELL, WARWICKSHIRE.

These two cottages have recently been erected on high ground facing south-west in a rural part of Warwickshire, near the village of Berkswell. The facing work was carried out in old materials: narrow bricks of varying shades, with the joints scraped; solid oak framing of a silver tone, pegged together, with herring-bone old brick filling and rough plaster in the gables. Old tiles cover the roof, many with the lichen still adhering, the valleys being built up to avoid the hard roof angle. In the grouping the stacks have been made a special feature. Local tradition and workmanship were observed. Internally, the rooms are spacious, and the three bedrooms each have fireplaces carried out in narrow bricks and tile creasing, which materials are employed in the parlour and living-room grates. The woodwork is treated with Solignum. Several old oak beams are introduced on the ground floor, and the joists exposed. Oak hobbin latches in the old form are fitted to the interior doors. The gardens have paths in stone flagging and cobbles, and the pump to the well has been carried out in simple oak and beadwork. The existing old cottages facing south some 40ft. from these were carefully repaired and re-stacked in keeping. Mr. Charles M. C. Armstrong, of Warwick, was the architect, and Mr. Charles Hope, builder, of Berkswell, carried out the work.

COMPULSORY REGISTRATION OF TITLE.

The question of compulsory registration of title was again discussed on Friday by the members of the Law Society, at a special meeting in the Society's hall, Chancery-lane. Mr. W. J. Humphreys presided.

The debate was resumed on a resolution, moved at the January meeting by Mr. J. S. Rubinstein, which recommended the council to consider whether or not the Privy Council should be asked to rescind the Order applying compulsion to the County of London, and also declared that the Land Registry Office was unable to justify its existence, and should be brought to an end.

The President now stated that the council were prepared to accept a portion of the resolution, but considered, after communication with the Lord Chancellor, that it would be useless to ask the Privy Council to rescind the Order, or to demand that the Land Registry Office should be brought to an end. He explained that their council had asked Mr. T. Cyprrian Williams to adapt to the present position the Bill which he had previously prepared, and this was now in shape as to the first part of it, which dealt with the simplification of the law. The Bill was sent in March to the Lord Chancellor, with a request that he would introduce it in the House of Lords, and they had received a reply that it would be carefully considered.

After some discussion Mr. Rubinstein's resolution was adopted in the following amended form: "That (a) the experimental working of compulsory registration of title in the County of London since January, 1899, has proved that the system is complicated, dilatory, and costly; (b) the amendments recommended by the report of the Royal Commission on Land Transfer are not calculated

to, and cannot, remove defects which are fundamental."

The following motion by Mr. F. Brinsley Harper was carried: "That it be referred to the council to consider and report to the society whether, in their opinion, the collection of rents and debts by solicitors on the terms of a commission being paid on the amounts recovered is unprofessional conduct on the part of such solicitors."

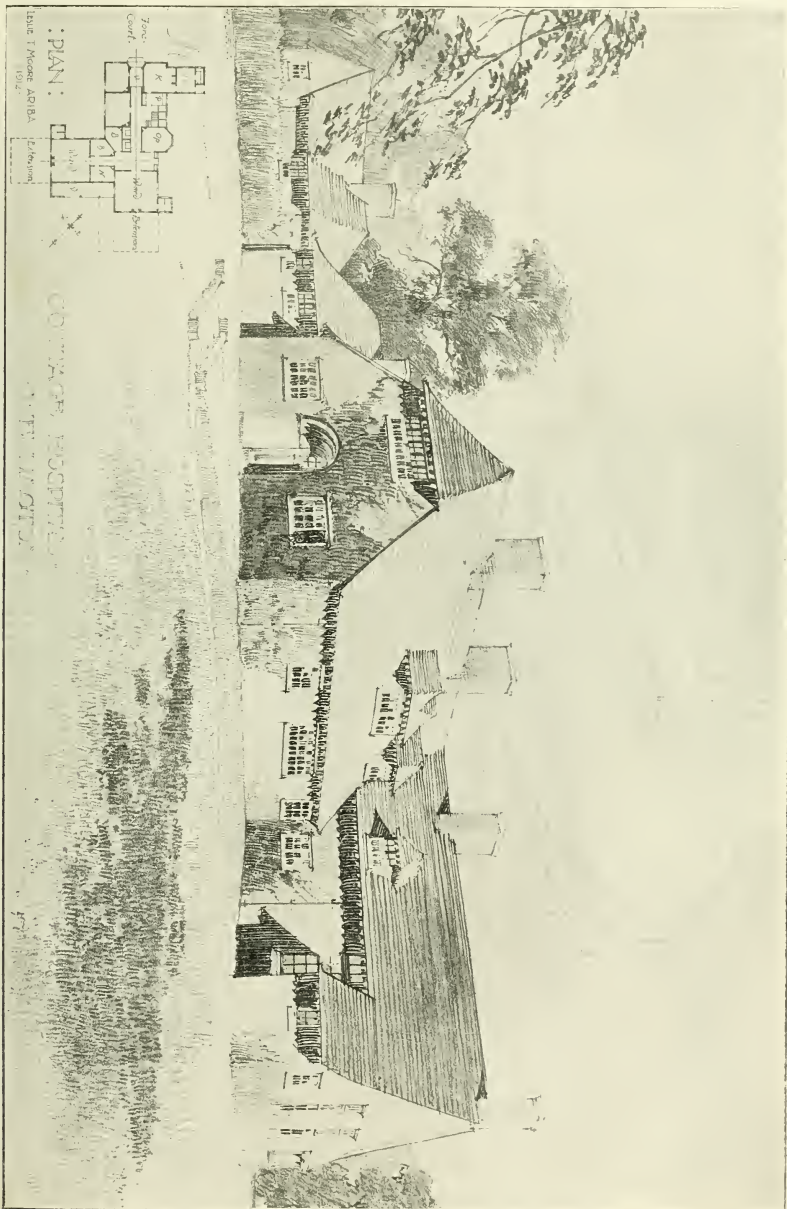
A parish-room was opened on Saturday, April 27, by Mrs. North, of Hightown. Canon Atkinson, rural dean, presided. The building was erected in the short time of four weeks, and is of brick. The building comprises a large room 50ft. by 24ft., with cloak-rooms, entrance, and outbuildings. Mr. Fred Seatehead, of Bank Chambers, Castleford, was the architect. The cost was £300.

Six years ago the work of preserving Winchester Cathedral was commenced with an appeal for £12,000. Gradually the appeal grew, as the state of the fabric was discovered, to £113,000. Last week the balance required to make up this sum was £1,111, but further donations have reduced the total amount still needed to £81. A great effort is being made to raise this sum before July, when the cathedral is to be reopened in the presence of the King and Queen.

The foundation-stones of new Sunday-school buildings, in connection with the Wesleyan Church at Westbury Park, Bristol, were laid on Saturday. The school will accommodate 250 children. It has been designed on the graded system, with primary, intermediate, and upper sections. The classrooms will be on the ground floor, and the large schoolroom above. The total cost is about £2,000. The architects are Messrs. W. V. and A. R. Gough, of Bridge street, Bristol, and the contractors Messrs. Geo. Humphreys and Son of Stapleton-road, in the same city.

The salary of Mr. F. Peter, small holdings surveyor to the Gloucestershire County Council, has been increased to £350 per annum.

The Mullissex Education Committee have accepted the tender of Messrs. A. Fairhead and Son, Exeter, at £14,975 for building the County school and technical institute at Ealing.



Engineering Notes.

PANAMA CANAL EXCAVATIONS.—The Panama Canal is rapidly approaching completion, the total amount of material remaining to be taken out being only 29,446,000 cubic yards, rather less than eleven months' work, at the present rate of progress. In Culebra Cut eleven million cubic yards remain. This is the spot where there was a mountain 1,360 ft. in height, forming part of the Andes range, which is being broken down. The Culebra Cut ought, therefore, to be finished within eight months at the present rate. It is probable, however, that the speed will be slowed down towards the end to enable the several sections of the work to be completed simultaneously. The grand total of canal excavation to April was 165,877,209 cubic yards.

PROFESSIONAL AND TRADE SOCIETIES.

ALUMINIUM ALLOYS FOR ENGINEERING AND BUILDING PURPOSES.—A lecture on "Aluminium Alloys" was given by Dr. Rosenhain, of the National Physical Laboratory, at a joint meeting of the Birmingham Metallurgical Society and other local metallurgical societies on Friday evening. Professor Turner presided. The lecturer pointed out the importance of weight in materials of engineering construction. In bridges beyond a certain size the principal load was the weight of the structure itself, and determined the limits of size to which single-span bridges could be pushed. Similar considerations applied to roofs. In the moving parts of machinery weight was an obstacle to high speeds, while the disadvantage in trucks, motor-cars, and aeroplanes was obvious. The use of light alloys raised some difficulties. In the early days undue expectations of the power of aluminium gained currency. With the purer metals now available the corrosion of these alloys was not more than that of steel. The lecturer proceeded to deal with various aluminium alloys, and gave a description of recent researches. Certain of the alloys studied, he said, were extremely promising for engineering purposes.

HAMPSHIRE FIELD CLUB AND ARCHEOLOGICAL SOCIETY.—The annual meeting of this organisation was held at Winchester yesterday (Thursday) afternoon. Dr. Williams Freeman gave an interim report on his work in connection with an archaeological map of the county, and with the barrows. He raised the question of the conservation of the old trackways of the county. A letter was read from the clerk of the Hants County Council inviting the club to co-operate with the public works and buildings committee of the council in compiling a list of the ancient monuments in the county to which the Ancient Monuments Protection Acts apply, so that the county could be made able to draw the attention of H.M. Office of Works to any monument which, in their judgment, may be worthy of permanent and adequate protection.

INSTITUTION OF CIVIL ENGINEERS.—At the annual general meeting of the Institution of Civil Engineers, held on Tuesday evening, April 30, the result of the ballot for the election of officers was declared as follows:—President, Mr. Robert Elliott-Cooper (London); vice-presidents, Mr. Anthony George Lyster, M.Eng. (Liverpool), Mr. Benjamin Hall Blyth, M.A. (Edinburgh), Mr. John Strain (Glasgow), Mr. George Robert Jebb (Birmingham); other members of Council, Mr. John A. F. Aspinall, M.Eng. (Liverpool), Mr. John A. Brodie, M.Eng. (Liverpool), Mr. William B. Bryan (London), Col. R. E. B. Crompton, C.B. (London), Mr. J. M. Dobson (London), Sir Frederick H. D. Donkin, K.C.B. (London), Mr. B. E. Elliott (London), Mr. C. H. Ellis (Sheffield), Mr. W. Ferguson, M.A., B.A. (Australasia), Sir Maurice Fitzmaurice, C.M.G. (London), Sir John Pурсer (Griffith Ireland), Mr. C. A. Harrison, D.Sc. (Newcastle-on-Tyne), Mr. Walter Hunter (London), Mr. Harry E. Jones (London), Mr.

E. H. Keating (Canada), Sir Thomas Matthews (London), Mr. W. H. Maw, LL.D. (London), Mr. C. L. Morgan (London), Sir Basil Mott (London), Hon. Sir Charles Parsons, K.C.B. (Weymouth-on-Tyne), Mr. F. E. Robertson, C.I.E. (London), Mr. Alexander Ross (London), Hon. Sir Francis J. E. Spring, K.C.I.E. (India), Mr. A. M. Tippet (South Africa), Sir Philip Watts, K.C.B. (London), Mr. W. B. Worthington (Derby). This Council will take office on the first Tuesday in November, 1912. The Council of the Institution of Civil Engineers have made the following awards for papers read during the session 1911-1912:—Telford Gold Medals to Messrs. Ernest and Walter Mansergh (London); a George Stephenson Gold Medal to Mr. Roger T. Smith (London); a Watt Gold Medal to Mr. A. H. Roberts (Leith); Telford premiums to Mr. John Goodmanson, A. B. McDonald (Glasgow), G. Midgley Taylor (London), D. C. Leitch (London), W. C. Easton (Glasgow), and D. H. Morton (Glasgow); and the Manby Premium to Mr. S. H. Ellis (Liverpool). The award for papers published in the Proceedings without discussion, and for students' papers, will be announced later.

MANCHESTER SOCIETY OF ARCHITECTS.—The annual report of the council states that the aggregate membership is 283—viz., 112 Fellows, 117 Associates, and 53 students—as against a membership of 281 at the date of the last report, being an increase of 2. The council have long felt the disadvantage of getting more closely into touch with the outlying and distant parts of the society's extensive province. To do this they have now decided to divide up the whole area into twenty-seven districts, and to appoint in each an architect to act as correspondent for his district. By this means it is hoped to obtain the very earliest information of any proposed competitions and town-planning schemes, and generally to extend the usefulness and influence of the society. During the past year the attention of your council has been drawn to two cases of tradesmen openly offering, by letter, a commission to architects. In each case the correspondence was submitted to the R.I.B.A., with a request that the tradesmen be prosecuted under the Prevention of Corruption Act, 1906. In one case the Royal Institution expressed satisfaction with the explanations given by the tradesman, and in the other case the architect who laid the matter before your council declined to be associated in the legal proceedings which the Council of the Royal Institute instructed its solicitors to take, and as without this assistance legal proceedings could not be taken, your council had reluctantly to consent to the proceedings being dropped. The committee report that a travelling scholarship of the value of £50 has been established, and that arrangements had been made for the delivery of two popular lectures, under the "Warburton" Trust, on the subject of Town Planning. The number of individual students for 1911-12 was 34, as against 30 and 27 in the two previous years respectively.—At a meeting held on the 24th ult. the report and accounts were approved and adopted, and following officers and members of council were elected:—President, Mr. John Brooke, F.R.I.B.A.; vice-presidents, Professor S. H. Capper, M.A., A.R.I.B.A., and Mr. F. R. Dunkerley, F.R.I.B.A.; hon. sec., Mr. Isaac Taylor, F.R.I.B.A.; assistant hon. sec., Mr. J. T. Halliday, A.R.I.B.A.; members of council, Messrs. A. E. Corbett, John Ely, W. C. Hardesty, Joseph Holt, P. D. Lodge, Paul Ogden, Claude Peterson, J. H. Sellers, G. Sanville, Edgar Wood, J. H. Woodhouse, and P. S. Worthington.

SANITARY INSPECTORS AT JARROW.—A meeting of members of the northern branch of the Sanitary Inspectors' Association was held at the town hall, Jarrow, on Saturday. Representatives were present from Newcastle, South Shields, Jarrow, Tynemouth, Wallsend, Whitley Bay, Monkseaton, Felling, Blaydon, Hebburn, Chester-le-Street, Benton, and the River Tyne Port Sanitary Authority. The members

were conducted over the Jarrow Secondary School, and afterwards over the corporation baths. On returning to the town hall the members were welcomed by the mayor (Councillor M. C. James). At the meeting which followed a paper on "The History of Jarrow" was read by Councillor J. D. Rose. Dr. J. M. Nicoll (medical officer of health for Jarrow) gave some interesting particulars regarding the vital statistics of the borough. Mr. J. S. Collis (sanitary inspector, Jarrow) read a paper on "The Commercial Value of Thorough Sanitation." Twenty years' experience of thorough sanitation at Jarrow had removed the insanitary conditions, and in proportion had reduced sickness and death from preventable diseases. During the eleven years from 1890 to 1900 inclusive, 1,207 cases were removed to the hospital. Taken at £5 a head, that represented an expenditure of £6,035. During the succeeding period of eleven years 853 cases were removed to the hospital, which represented an expenditure of £4,265, so that there was a saving of £1,770.

THE SOCIETY OF ENGINEERS (INCORPORATED).—The annual dinner of this society will be held at the Criterion Restaurant, Piccadilly-circus, W., on Saturday in next week, the 11th inst., at 6.30 for 7 p.m., when Mr. John Kennedy, the president, will take the chair. Among those who have promised to attend are Sir David H. M. Christie, K.C.B., Mr. R. S. S. G. Hill, K.C.B., Mr. R. S. Maurice Fitzmaurice, C.M.G., chief engineer to the London County Council, Mr. Alexander Siemens, past-president Inst. C.E., and Mr. H. P. Boulton, chairman of the Royal Sanitary Institute. The concert and conversation after the dinner will be a special feature of the evening's entertainment. Tickets may be obtained from the secretary, 17, Victoria street, Westminster.

THE EFFIGIES BY NICHOLAS STONE.—Dr. Alfred C. Fryer, lecturing before the Royal Archaeological Institute on Wednesday evening on "The Monumental Effigies of Nicholas Stone," said Stone was commissioned by James I. to undertake work at the Royal palaces in England and Scotland, and he also carried out, as mason, several designs for Inigo Jones. He acquired a great reputation for his monuments of persons of distinction. The effigy of Sir George destroyed much of his work in London; but the effigies of Sir George Villiers and his lady, Viscount Dorchester, Francis Holles, and Sir George Holmes might still be seen in Westminster Abbey, as well as the monument of Thomas Sutton in the chapel of the Charterhouse, and the effigy of Dr. Donne, poet and Dean of St. Paul's, in the Cathedral. A large number of Stone's effigies were in various churches in the country. Some of his monuments and effigies were inferior to his other work, probably owing to his not being given a free hand by his patrons, or to his leaving too much to his workmen; but when left to himself, and using his own chisel, he was able to produce effigies which showed that he possessed considerable genius, and, if he could not attain to the high level of Hubert Le Scur, he was a sculptor whose work formed an interesting study in the history of English art.

The Birmingham Education Committee considered, on Friday, a recommendation by the sites and buildings sub-committee that the appointment of Mr. H. T. Buckland as architect for the time being of the education committee be continued, at a salary of £750 the present salary being £650. After a lengthy discussion, it was decided to refer the matter back, the committee being of opinion that more extended opportunities of competition should be afforded.

The L.C.C. Parks and Open Spaces Committee reported, on Tuesday, that they had under consideration the question of the laying out of Geoffrey's garden, Kingsland-road, which has been temporarily reserved for the use of the public until December 14, 1911. The total cost of the works proposed for the laying out of the whole garden is estimated not to exceed £1,000, but the committee have deferred for a year the consideration of the question, pending gymnasia for children in the playground.

CURRENTE CALAMO.

The annual dinner of the Society of Architects, at the Holborn Restaurant on Friday evening, bore no resemblance to the funeral feast of a body about to undergo absorption in a larger and older organisation. The members mustered in great force, the speeches were bright and often humorous, and the musical selections by Miss Beatrice Jeffreys, Miss Ada Wheeler, Mr. Lyell Johnston, and Mr. Ben Lawes enhanced the gaiety of the proceedings. The presentation of the well-deserved gold medal to the President, who has served the Society so well during four prosperous years of its history, might perhaps have been rendered a more impressive ceremony. In his reply, Mr. Bond, who was received with a cordial outburst of cheering, was able to assure the members of an unprecedented growth in numbers and a strengthened financial position, notwithstanding the suspension of activities by which the Society has been handicapped. He candidly admitted that during the year not the slightest progress had been made as regards Registration—indeed, the Bill so laboriously devised by a joint-committee of the Institute and the Society has been referred back, owing to the organised opposition of some of the younger men. Mr. Bond's story of the history of the negotiations for amalgamation with the Institute was candid, and his facts creditable alike to himself and to Mr. Leonard Stokes and the Institute Council.

If some present regretted that recent indications point to the probability of Mr. Leonard Stokes's prophecy at the Society's last dinner, which the President quoted, being unfulfilled, others doubtless consoled themselves with the conviction that the Society would not suffer either in numbers or prestige. We do not think it will. Its own "insignificant little flappers," at any rate, have not risen in revolt against their own Council, or sought to repudiate a policy to which it was pledged, or set themselves to wreck that which they were incapable of understanding. If that wrecking policy at the Institute unfortunately succeeds we venture to predict that Mr. Bond's good-tempered and wise remarks last Friday will not be forgotten. "If there is any honour in the Institute the agreement will be carried out." If it is repudiated by a few men who do believe in honest effort to unify the profession will seriously reflect which of its organisations is most likely to second their aspirations and deserve their allegiance. Therefore the very present duty of the Society of Architects is to treble its membership and redouble its activities at the earliest possible period; so that, ere long, the volume and energy of its response to the call to action may win the battle which, perhaps, has daunted some elsewhere, and who shirked it behind petty pleas of incompatibility of comradeship.

Perhaps ere long, justified by an equal status as far as numbers go, and continued efforts to consolidate and guard the best interests of his art, the M.S.A. may not need consolation for the standoffishness of some of the exclusives of the Institute of the sort found by an old darkey who wanted to join the fashionable city church in the United States, and whom the minister, knowing it was hardly the thing to do, and not wanting

to hurt his feelings, told to go home and pray over it. Thus "referred back," in a few days the darkey came again. "Well, what do you think of it by this time?" asked the preacher. "Well, sah," replied the coloured man, "Ah prayed an' prayed, an' de good Lawd He says to me: 'Rastus, Ah wouldn't bodder mah habd about dat no mo'. Ah've been trying to get into dat ch'ch mahsef' fo' las' twenty yehs, and Ah done had no luck.'"

There should be some work for us presently in the building of dispensaries and sanatoria, if the Insurance Act is really coming into operation. According to the ideas of the Departmental Committee on Tuberculosis, which issued its interim report last Monday, between 225 and 300 dispensaries will be required for the United Kingdom, and sanatoria providing one bed for every 5,000 of the population. For administrative purposes, a county or county borough is recommended as the unit area generally, the county or county borough councils, or joint committees of local bodies to be responsible for the organisation, whilst for advisory purposes co-operation with the insurance committees and voluntary bodies interested in tuberculosis is suggested. We hope some of these good people will not waste money at the suggestions of faddists. Some of the proposals we have read lately are really amusing. One gentleman has quite convinced himself that a few battens and some waterproof paper made the best possible sanatorium—because it can be destroyed and renewed at pleasure!

There are, doubtless, plaintively-poetic Postlethwaites here who would regret the successful banishment of the fog-fog. So, in America, their brethren glow with enthusiasm over the beauties of smoke—Pittsburg smoke, too, which rivals the products of our own delectable Black Country. One of these anti-smoke-abaters assures us, in the New York *Metropolitan Magazine*, that the smoke clouds of Pittsburg "range all the way from fairy shavings and curls of pure white through geological strata of cream, mischievous, evanescent ringlets of bluish white, smudges faintly tipped with olive, aerial bushes of delicate rose, trees of orange and rusty red, through a hundred tones of grey, then deepening to a black as rich as the glossy, tarry coal from which it sprang." There is no human gratitude left if Mr. Carnegie fails to send this sweet singer of smoke a golden laurel wreath!

The text has just been published of Sir Thomas Roe's Bill to empower local authorities in England and Wales to levy a rate for advertising health resorts and watering-places. The measure authorises the insertion by local authorities of advertisements in newspapers not published within the borough or district so sought to be advertised, or advertisement by placards or otherwise, as they may see fit, and such bodies may expend money for the purpose provided that sums so expended shall not in any one financial year exceed the amount that could be raised by a rate of one penny in the pound on the rateable value of the borough or district. Generally, we think the idea of the Bill is good. One thing we should like to see, and that is the consent of the Local Government Board should be made compulsory first, and sternly refused to any town that fails to maintain a high sanitary standard, efficient precautions against overcrowding, or dis-

graces itself by permitting low-class and demoralising amusements, that repel decent people.

The "Half-Timer" is once again the experiment-subject of our legislators, and not without reason. Few of them, however, seem to perceive that the repeal in 1814 of the Statute of Artificers, passed in 1562—another doctrinaire interference with practical politics—has been mainly responsible for child labour. The old Statute of Artificers made the apprenticeship—the best technical training of the time—compulsory. But it did more than that. It completed the best education a boy stood in need of, under the eye and in the home of a master, who was strictly bound by indentures and by the rules of the trade guilds. There are few masters now who can or will teach. The majority of the lads, after a superficial school education, are found "blind-alley" jobs, and some of them are sweated while still at school. Many trades have become so specialised that apprenticeship is impossible. The evening school is our best effort, so far, to continue education and to direct it to the growing needs of the lad. The problem is a complex one, and so far no one has really grappled with it. How are we, in these days of impatience of restriction of "industrial freedom," to insist on competence, and to secure the competent from the influx of the demoralising competition of the incompetent?

We fully illustrated the chosen design for the National Museum of Wales at Cardiff in our issue of April 1, 1910, and the other premiated designs in the same volume. This week a well-constructed model of the Museum has been on view in the Petitions-room adjoining Westminster Hall. The building will be placed in Cardiff in Cathays Park. The Government gives a grant for building and there is a nucleus income of £5,000—£3,000 of which comes from the State and £2,000 from the municipality of Cardiff. The scheme will be begun by a building representing rather under one-half of the total extent planned. The rest of the structure will be gradually completed afterwards. The architects are Messrs. A. Dunbar Smith and Cecil C. Brewer.

On the recommendation of the Academic Committee, the Council of the Royal Society of Literature has determined to award the Gold Medal of the Society to Mr. Thomas Hardy. The last recipient was George Meredith. The medal is now being struck, and will be presented to Mr. Hardy on his next birthday, June 2. Our heartiest congratulations to its recipient, whose genius would have assured him fame as well earned, if perchance not so world-wide, in the continued pursuit of our own art as he has won as the foremost novelist of his age.

The estate and property committee of Newcastle-on-Tyne Corporation decided on Monday to confirm the minutes of the baths and wash-houses committee recommending the city council to erect public baths at Heaton at a cost of £8,000.

The Duke of Argyll unveiled the memorial which has been erected to the late Hon. C. S. Rolls on the sea front at Dover on Saturday. Mrs. Scott (the wife of Captain Scott, the Antarctic explorer) was responsible for the design and work of the statue. The statue shows the aviator in his aviating clothes with his hands behind his back, an attitude familiar to those who knew him.

Building Intelligence.

CLAPHAM, S.W.—The foundation stone of a new church, which will be a memorial to the late Canon Greene, was laid in Narbonne avenue, on the south side of Clapham Common, on Saturday by Mrs. Ellis. The church will be dedicated to the Holy Spirit, and will serve a new parish, formed out of the parishes of Holy Trinity and St. James'. The population of this parish is estimated at 8,000; the church will seat 600. The west front of the building will face Narbonne avenue. Part of the work has been done already, and the outer walls have been raised to a good height. The church is rectangular on plan, and consists of a nave with wide aisles, choir to north, morning chapel, and vestries. On the north side of the western gable is a bell turret. The external materials are brick with stone dressings. The building will cost £8,500. The amount still to be raised is about £3,000. The architect is Mr. H. P. Burke Downing, F.R.I.B.A., whose exterior and interior perspectives, which plan, hung at the Academy last year, were given by us in our issue of May 12, 1911.

HOTEL CECIL.—The alterations which have been in progress at the Hotel Cecil for some time past are now completed, and the new palm courts are available for public use. The carriage approach through the Strand arch has been reduced to one-third of its former size. The floor space thus obtained, with the site of the lounge, which has also been absorbed, has been converted into two palm courts. The lower court is about 90 ft. by 45 ft., by 32 ft. high, and the upper court, which is reached by a wide flight of steps, and is 4 ft. above the level of the lower court, has a length of 110 ft., a width varying from 28 ft. to 34 ft., and a height of 28 ft. A covered way 10 ft. wide has been made between the lower palm court and the east block, for entrance to the hotel. Over 200 tons of steel have been used in the work, which has been carried out under the direction of Mr. E. Keynes Purchase, F.R.I.B.A., of Maddox-street, W., and the whole of the construction is fire resisting. The decorations have been executed in the Louis Quatorze style.

NOTTINGHAM. The foundation-stone of a new choir aisle and organ-chamber at St. Mary's, the parish church of Nottingham, was laid on Friday by Viscount Milner, G.C.B. The scheme is estimated to cost £47,000, including the provision of a new organ. The new chancel aisle, which is to serve for the organ-chamber and morning chapel, extends from the east wall of the south transept, along the south side of the chancel, to within one bay of the existing east end. The chapel will open into the chancel by an arcade of three lofty arches, and the height of the aisle is to be above the aisle wall-plate, as the existing chancel. The three old south windows of the chancel, with their stained glass, are to be fixed in the south wall of the new chapel, and a new window, of similar design, will be placed at the east end of the aisle. The organ will be placed in a gallery, about 10 ft. above the floor in the western bay of the new aisle, with the keyboard on the south side of the chancel. The architect is Mr. Temple Moore, F.S.A., F.R.I.B.A., of Bedford row, W.C.; the builder, Mr. Uthorpe, of Selby; and the clerk of works Mr. Thomas Fisher, of Westmount, Mansfield.

WIDNES. Sir Henry Hubert, chairman of the Lancashire Education Committee, opened at Widnes on Monday an extension of the Municipal Secondary School, which has cost £14,000. The basement of the new department provides for mechanical and electrical engineering. There is also a special room for students attending the technical school who desire to learn decorating and painting. On the first floor there is a large hall, given by Mr. H. Wade, and to be used for assembling purposes and as a gymnasium. On the second floor there is also provided a well-ventilated room for secondary schools, and also a room for receiving instruction on land-roving, and for evening students in carpentry

and joinery. In the upstairs portion accommodation is provided for cookery classes, dining room, men's private room, mistress's private room, and the girls' prefect room. The remaining portions of the extension are provided with classrooms. The plans were prepared by Mr. Henry Littler, one of the Lancashire county architects.

PARLIAMENTARY NOTES.

PRESERVATION OF ANCIENT MONUMENTS BILL. A discussion took place in the House of Lords on Tuesday on the introduction by Earl Beauchamp, as First Commissioner of Works, of this measure, which aims at consolidating and strengthening the existing laws. Lord Beauchamp explained that it was proposed to give compulsory powers to the Commissioners of Works, if advised by the Ancient Monuments Board, to be constituted under the Bill, that any monument was in danger of destruction or damage from neglect or injudicious treatment, to make an order placing the monument under their own protection. The Preservation Order issued by the Commissioners would require confirmation by Parliament, and would therefore, in the event of its adoption, be considered by a Select Committee in either House. One effect of a preservation order would be to give the Commissioners a right of pre-emption should the owner of a monument propose to sell it. He proposed that the Bill, and two other Bills dealing with this subject, should be referred to a Joint Committee of the two Houses. The Duke of Rutland criticised some of the provisions of the Bill. Earl Curzon of Kedleston gave a long speech in support of the Bill, and stated that the subject might be dealt with in a somewhat higher spirit. Lord Sheffield asked whether it was possible to extend the scope of the Bill so as to include objects of natural beauty like the Glastonbury Tor, the Maidenhead Railway, and that objects of natural beauty had been purposely left out of the Bill, because they wanted to do one thing at a time. With regard to ecclesiastical property, he stated that there had been cases where parochial authorities had sold valuable ancient plate to go abroad. The Archbishop of Canterbury said that he should be sorry if it were to be supposed that ecclesiastical property, whether fixed or movable, was in the hands of the control of the local ecclesiastical buildings. That was not so. The Bill was read a second time and referred to a joint committee of both Houses. Another Bill dealing with the same subject was read a second time, and referred on the same day, on the motion of Lord Southwark.

STATUES, MEMORIALS, &c.

KENSINGTON GARDENS. Sir George Frederic's bronze statue of Peter Pan was unveiled with ceremony in Kensington Gardens early on the morning of May Day, and may be found on the shore just opposite a little bay in the Serpentine. Peter Pan stands 4 ft. high, holding in his left hand a pipe, and with his other beckoning to the birds. His point of command is unconventional and felicitous; it is a bronze imitation of the trunk of a tree, round which winged fairies may be seen scrambling, and from which the birds and creatures, which rabbits, and mice, and birds disport themselves. In a larger cleft of the tree, with his back to Peter Pan, stands old Solomon Caw looking into the distance. The plaster model of Sir George's statue, cleverly re-created by Mr. M. Barrie's conception was exhibited at Burlington House last summer.

WINDSOR. The local memorial to King Edward, which was unveiled by the Mayor on Monday, consists of a bronze statue of the late King, standing on a stone pedestal, with bronze decorations. At the four corners are allegorical figures in bronze hiding shields bearing the names of those qualities which were most characteristic of King Edward—Intus (Tact), Sapientia (Wisdom), Humanitas (Humanity), and Fides (Faith). The shield has been executed by Count's Feodor Gleichen, whose design was chosen from among those of about 18 competitors, all the designs having been anonymously submitted to the committee, and the design was the lawn in front of the King Edward Hotel.

Mr. J. H. Drew, surveyor and engineer to the Borough Urban District Council, has been appointed to a similar post under the urban council for Watton Deane.

Additions are about to be made to the electricity-generating station in Bognorwood road, London, by Messrs. J. J. Jackson, Ltd., and Messrs. Holliday and Greenwood, Ltd.

Correspondence.

THE DECADENCE OF ENGLISH ARCHITECTURE.

To the Editor of the BUILDING NEWS.

SIR,—When the work of designing such important buildings as the Ritz Hotel, the Morning Post offices, and the Automobile Club is entrusted to foreign architects, it is evident that there is something radically wrong with the architectural profession in England. In the cases we have quoted it can scarcely be urged that the buildings are of such a special nature as to require the services of foreign architects in preference to those which, one might reasonably expect, could be equally well rendered by our fellow-countrymen.

Why, then, have the owners of these buildings thought it advisable to go so far afield for the professional assistance they required? No one would answer must be that the owners have had sufficient discrimination to see that they are likely to obtain a better result by the employment of the foreigner. In other words, it is impossible to obtain the services of English architects who have been equally well trained in the technique of their art. The dearth of highly qualified men in this country is due to our present unsystematic and inefficient mode of architectural training. And so long as we remain without properly-organised and properly administered schools of architecture, we may anticipate that the work of the better-trained foreign architect will be more and more in evidence in the United Kingdom. Recognising this fact, it is imperative that the architectural profession should seriously consider what steps can be taken to cope with the difficulty.

It seems to us that, following the formulation of a sound and comprehensive scheme of architectural education, the Government should be approached to give its financial support to enable the scheme thus put forward to be realised in its entirety.

We are aware that the British Government rarely, if ever, does anything in the cause of art; but in this case it might easily be induced to see what foreign countries have long ago realised—viz., the undoubted fact that good architecture is a national asset, and as such, State assistance to art education has proved a sound financial investment. But however good such a scheme may be in theory, and however well endowed, all would be for nothing unless the discipline of the students' work were under the absolute control of specially-trained men. Handicapped as they have been in the past by the non-existence of any school for the advanced study of their art, the architects of this country cannot be expected to furnish the necessary teachers. It would seem, therefore, that upon its inauguration this National School of Fine Art would have to rely upon obtaining professors from foreign countries.

To those who do not know the details of the system of architectural training which has been carried on so long and successfully in France, the following brief description of the curriculum of study at the Peaux Arts may be of interest.

After a competitive entrance examination for admission, the student in Architecture attends a course of lectures on each of the following subjects: Mathematics, descriptive geometry, stereotomy, physics, chemistry and geology, construction, perspective, building regulations, history and theory of architecture. In addition to the foregoing subjects, which are specially applicable to the training of architects, it has been wisely felt that as architecture is but one branch of art, it is necessary that its exponents should receive at least some instruction in the sister arts of painting and sculpture.

As the architectural student receives his specialised instruction, so in like manner do the painters and sculptors become specialists in their separate arts. But, prior to this specialisation, all the students of the Ecole des Beaux Arts, whether painters, sculptors, or architects, are obliged to attend a course of study on design, modelling, elementary

architecture, literature, and decorative design. By adopting this method of training, painters, sculptors, and architects are taught at an early age to appreciate the merits and necessary limitations of their colleagues' work. The exponents of the three arts thus become accustomed to work together, and it is only by this appropriate application of their united efforts that a homogeneous and thoroughly satisfactory artistic result can be obtained.

To compare the results obtained under this methodical training with those that follow the haphazard system (or want of system) in vogue in this country is not only humiliating and depressing, but shows that our much-vaunted commercial instinct, in this instance, is disastrously astray.

This is only one aspect of the many problems relative to the welfare of the architectural profession which show the urgent necessity of obtaining statutory powers to enforce a satisfactory system of architectural education. So long as we are content to see untrained men allowed to practise in this country, just so long will the decadent period of architecture now existing continue.

—WE ARE, ETC.,
A. W. CROSS.

THE INCREMENT DUTY HELD RESPONSIBLE FOR THE SLUMP IN HOUSE PROPERTY.

SIR,—Ninety-nine out of every hundred would be property purchasers misread or, rather, misunderstand, the Finance Act in relation to increment value. They think that if the value of the property, as a whole, increases, the value they will be taxed on the whole. For instance, if a house and land were bought for £400, and afterwards sold for £500, they imagine £20 would require to be paid as the increment tax; whereas, if the land value had not increased, and the property were sold at a profit, owing to the astuteness of the owner, there would be no duty payable.

One of our best architects will hear me out that directly the Finance Act was passed they had commissions for buildings cancelled, the owners erroneously thinking that if they put a £1,000 house on to a £200 plot of land, and then sold the same for £1,500, there would be a duty of £50 payable; whereas the tax depends entirely on the increase of the site value, the building doesn't count. Architects, builders, and estate agents have repeatedly told me they have done a decreasing business since this Act was passed, and I imagine one factor to be the above miscomprehension. I strongly advise the dissemination of the true facts as one way to brighten a greatly-depressed occupation.—I am, etc.,
J. H. KERNER-GREENWOOD.

NOTES AND SKETCHES NORTH OF LONDON: CONCRETE FLOORS.

SIR,—In your issue of April 19 a note is made of a very good porch of the Doric order near Hoddesdon, and if any of your readers are in Hoddesdon, I should strongly advise them to see the interior of the Conservative Club there, which has some very good Jacobean work in it.

One of my customers, Mr. Nicholls, a builder, lives opposite, and Mr. Hunt, another well known builder, lives near by, and I am sure they will be pleased to show any architect over this club.

In the same issue there is an article by Mr. W. J. May on "Concrete Floors," and I made one important item I should like to mention with regard to this, and that is, owing to the density of the linoleum, it very often rots through the dampness which rises from the concrete. This can be prevented if the cement is Pudlo—this is to say, a few pounds of Pudlo are added to the cement before it is laid.

Pudlo is a powder which I make, and which absolutely makes cement waterproof. It is ideal for this work, and the expense is very slight.—I am, etc.,
J. H. KERNER-GREENWOOD.

King's Lynn.

LEGAL INTELLIGENCE.

IN THE MATTER OF THE ARBITRATION

ACT, 1889.—Between Messrs. John Barker and Co., Ltd., and Hurlingham Club, a dispute, continuing our report from last week of this dispute under a contract for alterations and additions to the club's premises, dated Nov. 19, 1906. It will be noted that the arbitration proceeded on the 19th day of the ninth day before Mr. Charles A. Poland, the arbitrator, at the Royal Courts of Justice, on the 24th ult. Mr. T. Woodbridge Biggs, for the claimants, and Mr. C. Herbert-Smith, for the respondent, after a long discussion with regard to corrections of the shorthand notes of the previous day's proceedings, Mr. Joseph Harris was cross-examined by Mr. C. Herbert-Smith as to various items embracing the roof over the cloakroom, the iron railings, new lavatories, bricks, etc., and the proceedings were adjourned till the following day.

After the conclusion of Mr. Biggs' re-examination of Mr. Harris, Mr. Francis Barker and Co., Ltd., was examined by Mr. Biggs. How long have you been a director, or how long have you been in the firm of John Barker and Co., Ltd., for many years. Was it not before it was formed into a company?—Oh, yes. Have you been a director since the company was formed?—Yes. How long is that?—I think about 15 or 16 years. During the time that Hurlingham Club matter was on, were you the director who had charge of the building department?—Yes. And you have had something to do with the matter, more or less, ever since, have you not?—Ever since the work was finished. So you are one of the alleged blackmailers?—I suppose so. The Arbitrator: Ever since the work was finished, did you say?—Yes. Mr. Biggs: Is it the custom of your company to practise blackmail on customers?—Of course not. Have you ever been charged with it before?—No. Have you ever been insulted in a similar way before by such a remark?—No. Continuing: Mr. Barker could he remember the time when he was the usual R.I.B.A. contract. He signed the contract, and saw the additional clause 13A before doing so. The writing in of that clause was explained to him by the architect. He was coming on, and that these new works were going to have an estimate and a blue order, and these were obtained. The matter was not discussed with the architect.

Mr. Fletcher: I saw the architect in his life. His firm did give subsequent estimates, and had blue orders for them. He remembered Mr. Harris coming to him in his office on December 10, 1906. Mr. Fletcher: Nobody representing the club was present at this interview. How can the interview between Barker and Harris be binding against us? Mr. Biggs: We have had the evidence once from Mr. Harris. Mr. Fletcher: I take the objection. The Witness: Mr. Harris came to me, and I think his expression was that the architect had made a blunder. The Arbitrator: This is in reference to the reduced thickness of the walls?—Yes. Mr. Fletcher: Yes. And he pointed out that the representative of the architect was not desirous that this matter should be mentioned, and he had come to an arrangement with him that to set off the mistake on the drawings, to reduce the walls from 18in. to 14in. I asked him if the architect knew of this, and he said: "No," and I said, "I will not be a party to any arrangement being made with the representative of the architect," and I insisted on a letter being written direct to the architect, pointing out to him the arrangement they had made. Then did you dictate the letter to the architect?—Yes. At least, Mr. Harris said the portions of it which were to go in the letter relating to the wall, and I afterwards saw the letter before it was sent. Mr. Biggs: Did you receive the letter of the following day from Mr. Lutens?—Yes. At least, Mr. Harris said, and I saw it. Is there another letter of any description referring to this wall or the set-off, the alleged agreement?

Not that I am aware of until 1907. I believe that is all that is in it. Mr. Biggs: Then, I am talking about while the job was on?—No. I will not ask you what you thought? I made inquiries afterwards with regard to this, and was told that the agreement was stated by Mr. Fletcher. By whom?—Mr. Harris. Mr. Fletcher: That is not evidence. Mr. Biggs: Whom can he ask? He must ask his subordinates. Mr. Fletcher: I do not deny that. But it is a matter which he cannot ask about. However, the objection is on the note. Mr. Biggs: I think it is evidence against you, and very strong evidence, and that is why you do not particularly like it. Passing over the witness if he had anything to do with the account that was sent in on November 1, 1907. Witness said: No; but he had to do with subsequent accounts and applications for money. On March 12, 1909

a meeting took place at his office, at which Mr. Thomas, Mr. Idle, Mr. Florence, and himself were present, and they went over all the items. On June 25, 1910, he gave notice through Mr. Biggs that he required the matters in dispute under the contract to go to arbitration. On July 4, 1911, his firm issued a writ for £1,374 8s. 7d. Thereupon an application was made to the Court to stop the proceedings, on the ground that they were an abuse of the process of the Court. The Master ordered the proceedings, and the Judge, on July 31, 1911, maintained the Master. Mr. David Morton Florence, manager of the Solid Ledger Department of Messrs. Crompton, was cross-examined by Mr. Biggs. He remembered the interview of March 12, 1909, between Mr. Francis Barker, Mr. Idle, and Mr. Thomas, and took notes thereof.

Resuming then, Mr. Francis Barker, recalled, gave further evidence.—Mr. Biggs, addressing the arbitrator, said: I am going to make an application now, and ask you whether you are prepared to state your award in the form of a special case for us to take to the Court?—The Arbitrator: I do not quite know what that really means.—Mr. Herbert-Smith: I think, in fairness to him, you should have given the arbitrator notice of it, so that he might have had his legal adviser here.—After some discussion, the arbitrator then did give an award that he had heard both sides. Mr. Herbert-Smith then opened his case, and called Mr. Albert John Thomas, jun., manager for Mr. Lutens, who said the suggestion that after the work had been going on about a month it was discovered that he had prepared the plans—or, rather, Mr. Lutens had prepared the plans—without providing for a roof over the gentlemen's cloakroom, and that then it was arranged that, provided Mr. Harris did not disclose this fact, he would give an estimate to reduce the brickwork, and he was to put the roof on without any extra charge, was ridiculous. He never agreed that reductions in the courtyard in the brickwork were to be set off against the roof in the cloakroom. Witness then gave evidence with regard to various items. Cross-examined by Mr. Biggs, witness said he had been with Mr. Lutens since April, 1901. He was thirty-six, and he became manager at twenty-five. He managed the whole of the building and site work, and he had had architectural training. He had had twenty-three years' experience. His father was a builder. He was born among what are commonly called "the shavings," and so had practically been in the building trade all his life. He acted for Mr. Lutens as quantity surveyor in certain cases. He was not a paid assistant. He did not work for nothing. He had a retaining fee. Doing the quantities did not come into the retaining fee—he got paid for that. He prepared the quantities for the plan clause 13A in. It was a clause he very often put in contracts—not always. He was to overlook the work. He had a clerk of works on the job. He used to visit the work; he could not say how often. After further cross-examination, the proceedings were adjourned till Tuesday, when Mr. Thomas's cross-examination was continued. The arbitrator then announced that his legal adviser was there, and the discussion was resumed on Mr. Biggs's application that the award of the arbitrator be set aside, his award in the form of a special case for the claimants to take to Court.

A NUNEATON ARBITRATION.—A few weeks ago it was announced that the arbitrator in the case of Messrs. Stanley Brothers (Ltd.), colliery proprietors and brick and tile manufacturers, v. Nuneaton Corporation, had given an award in favour of the defendants, with power to the plaintiffs to appeal should they desire to do so. Messrs. Stanley have now given notice of appeal. The proceedings arose out of a dispute over the price of water supplied to Messrs. Stanley from the corporation mains.

DISPUTED CONDITIONS OF CONTRACT.—OWNERS AND ARCHITECT SEED.—At Bromsgrove County Court, before Mr. Justice Aldridge, James Aldridge, builder and contractor, Rubery, brought an action against William Tibbels, Reinder Inn, Netherton, for £73 4s. 7d., balance of account alleged to be due in connection with the rebuilding of the cottages at Rubery. Mr. Maddocks appeared for the plaintiff, and Mr. Milward for the defendant. In opening the plaintiff's case, Mr. Maddocks said the contract was for £1,240, and they were claiming for extra work. The original estimate was £1,285, but the deletion of certain items reduced the amount to £1,246 10s., and this was brought down to level money, £1,240. Various extras were carried out, including the erection of a new house, and alterations in the site house, fitting up w.c., alterations to the w.c.s, and drainage and other work in addition

An exhibition of pictures of local objects by local artists was opened at York by the Sheriff of that city on Friday. The greater number of the works are by Henry Cave and W. J. Boddy, whilst Edwin Moore, Joseph Reynolds, and William H. Chambers have recently bought by the corporation, consist of some water-colour drawings, and forty-one pencil sketches and tinted drawings of ancient buildings in the city, which are the originals for Cave's famous woodcut series "A History of the City of York" published in the early part of the last century. Of the 137 water-colour drawings by the late Mr. W. J. Boddy, there is a good percentage which are of more than ordinary interest. They represent old houses in the city, and are treated with freedom and historic sense, and yet a remarkable fidelity. A recent purchase by the corporation of Opie's fine portrait of John Flaxman, R.A., the York sculptor, is also an object of great interest. The whole collection are five excellent water colour drawings



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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OUR ILLUSTRATIONS.

Sion Hill, Thirsk, Yorkshire. Mr. Walter H. Brierley, F.S.A., F.R.I.B.A., Architect.
 Royal Society of Medicine New Premises, Henrietta-street, W. Messrs. John Belcher, R.A., and J. J. Joass, Architects.
 Messrs. Williams Deacon's Bank; Matlock Branch. Messrs. John Langham and A. R. Parker, Architects.
 Messrs. Burberry's New Premises, Haymarket, S.W. Mr. Walter Cave, F.R.I.B.A., Architect.
 Design for the Chapel of the Resurrection, at Mirfield, near Leeds. Mr. Temple Moore, F.R.I.B.A., Architect.
 Brick Ornament.

THE PLANNING OF HOTELS.

Now that design has popularly come to signify in most cases only the outward aspect of a building, people who have been accustomed to misapply that term in this way should note first of all, when they are dealing with hotels, that the inside of them is generally the most important part. In this they differ from churches, and still more from chapels, whose promoters say, if the outside can be shaped into the likeness of a church, the work may be as feeble, and therefore as cheap, as the committee see fit to allow. Why people go to a church, we none of us quite know; though why they put up at an inn, we can all conjecture.

We feel a sort of veneration for an old hotel, and most veneration for a really old one—say, of Chaucer's time, or a little before it. Anciently, a hotel and a hotel were two words of much the same meaning. But if the word is shorter by one letter than it used to be, it means more by many words than it did; and its architect is expected out of his own head to supply the deficiency. Few people will volunteer to give him information. Being an architect, the public take it for granted that he knows all the tricks of his trade, and woe to him, sooner or later, if he has missed any one of them. Of our ancient inns, the King's Head, Norwich, is one of the oldest which still remain. The King's Head, at Chigwell, Essex, may come next, being described in "Barnaby Rudge" under the name of the "May-pole." The May-pole, with more or less change, remains till today. The old inns in the Borough are gone, and only those of us who have some what long memories can remember them. There used to be many good inns in Norwich; perhaps there still are. There is no such thing as an hotel licence, properly so called. What is called a "temperance hotel" is an hotel or inn with no license to sell excisable liquors. Pictorial signs originated mostly in old titles and old coats of arms, as the Peg and Wassail, which, in time, was corrupted into the Pig and Whistle. Generally, there are three classes of hotels—viz., Presidential hotels, Commercial hotels, and Family hotels. The Residential hotel is used as a dwelling-place for families whose place of abode it is for weeks, and months, or even years. In the Commercial hotel there should be a feeling of comfort for the occupants; but lavish and expensive fittings would be out of place. Separate tables must be provided in it for correspondence, and a sufficient supply of guides, directories, and the like. The Rail-

way hotel is for the travelling public, who have only to walk from the train into their rooms, and so can easily avoid costly cab-fares. Their luggage is brought in with little expense by railway-porters. The function of an hotel is all-important, and should be settled with its future architect when or before he is definitely appointed. A Commercial hotel should be in the centre of commercial life, and it may well be located in the midst of theatres, clubs, and of fashionable life in general. This, of course, does not apply to hotels in health resorts, which, with more isolation, have a greater chance of success. The usual accommodation of the modern hotel is much as follows. On the ground-floor: 1. Lounge, or winter-garden. 2. Dining-rooms, restaurant, coffee-room, with services adjoining. 3. Reading-room and writing-resting-room. 4. Small drawing-room. 5. Smoking and billiard-room, with bar attached. 6. Ball-room, with reception-room attached. 7. Office and manager's room. 8. Men's lavatory and cloak-room. 9. Ladies' retiring-room and toilet-room. In the basement: 1. Kitchen and kitchen offices. 2. Dining-rooms for the staff. 3. Servants' hall. In addition, one or two private rooms are wanted as private dining-rooms, and in the country a large hall for public banquets and meetings is necessary with a separate service and a separate kitchen.

In large hotels, a separate barber's shop is often found useful, with office, lift, and separate entrance. A café is sometimes thought desirable, as at the Savoy Hotel; but this, in Continental hotels, is a regular feature. In Eastern hotels, a bazaar should be arranged, to afford shelter from the sun, and a comfortable lounge. The upper floors are generally devoted to bedrooms, bathrooms, w.c.'s and service-rooms, of which there should be one on each floor, fitted with sinks, hot-plates, etc., in direct communication with the kitchen, adjoining which the lifts to carry coals, etc., should be arranged.

As far as possible, the ladies' and gentlemen's w.c.'s should be kept apart, and cut off from the main corridor by a ventilated lobby. Lavatories for both sexes should be well separated and not too obvious. In commercial hotels a separate entrance, with office and lift, is desirable.

The manager's office need not be a large department, but should be near the main entrance, and should include reception, inquiry, and cashier's offices, and offices for letters and keys. Mr. Stanley Hamp's address to the R.I.B.A. on hotel-planning

was illustrated by plans of the following hotels, viz.: the Grand Hotel, Paris; the Savoy Hotel, Strand, London, W.C. (Messrs. T. E. Colcutt and Stanley H. Hamp, architects; ground plan, first-floor plan, first and second basement plans; Hotel Capri Town (ground plan and basement plans, showing verandahs); the Hotel *Ronda*, Andalusia; the Hotel Russell, Russell-square, W.C. (ground and first-floor plans, ground plan, and basement plan); Imperial Hotel, Russell-square; the Burlington Hotel, Boscobel; the Grand Hotel, Jersey; the Hotel Reina Cristina, Algeciras. There were plans of the basement, ground floor, and first floor of the Hotel Great Central, London.

Sandries and General Points.—Whereabouts to place the kitchen—in the basement or on the topmost floor—used to be a vexed question before electric-propelling fans came to the front. But the most convenient place, it is now agreed, is near to, or just below, the dining-room. If the flues on an upper floor are too short, it is now generally agreed that the kitchen should be on the same floor as the principal dining-rooms, or just below them; and larders cannot be kept so cool on a top floor, nor any of the general rooms and stores pertaining to the kitchen department. The kitchen may be said to be divided into five working parts—namely, soup, sauce and entrées, vegetables, and fish. Ice and ice-making often follow on to the poultry and confectionery, simply because that sort of work makes the ices; but as there is always some wet from the melting ice, Mr. Hamp thinks it better to place it beyond the kitchen and larders. The plate-cleaning, knives, and general scullery should be close to the service-rooms. The fish-larder and fish should lead from the vegetable-kitchen, so that the copper and other utensils can be quickly cleaned and returned to the kitchen. The chef's room should be as near the kitchen as possible, and also close to his *hors d'œuvre* and principal stores.

A place must be arranged for kitchen coals; a chef's store for soap, coals, salt, utensils, and the like; a cook's room, dressing-room and lavatory, servants' hall, steward's room, waiters' dressing-room and lavatory, and, where women or kitchenmaids are employed, a women's dressing room and lavatory. Wines and beer cellars, with platform lifts or skips, are generally near the kitchen offices. To prevent articles from being stolen or "lifted," Mr. Hamp advises doors to shut off each corridor which encloses the kitchen department, the larders, etc.

Raw meat, game, and poultry larders should be provided with refrigerating process or "cool-rooms." In large hotels there are often two or three service-rooms, especially when carving is done there and not in the dining-room or banqueting-room. Service-rooms, waiters' pantries, or housemaids' rooms would be wanted on various floors. The glass-pantry should always be on the same floor as the dining-room, or the breakage will probably be very heavy. The engineer of a great Piccadilly Hotel remarks that "To solve the ventilation problem in the case of an hotel is to solve it for every kind of public building."

The general arrangement should be simple, and easily remembered by visitors. Lavatories for both sexes should be near the entrance-hall. Near the entrance there should also be a porters' room. Visitors should not be compelled to pass through the lounge to gain access to their bedrooms. Near the entrance, both the passenger-lift and the luggage-lifts should be. In large towns especially, the dining-room should be provided with an orchestra. A patio is a pleasing feature, and is largely used in Spain. At times it is roofed quite over, in which case the bedrooms can open directly on to its internal balcony. The rectangular bays, 12ft. square, are much appreciated, especially for small dinner-parties. In the upper floors some rooms in all hotels should be arranged in suites—one or two bedrooms, with small hall and doors to communicate. Fixed wardrobes can often be provided with this kind of plan. Communicating double doors sometimes have a movable deafening pad placed between them. Thermopiles to absolutely control the temperature are much used in the United States. Fire-alarms and hydrants are needed in this public corridors of hotels.

Some main features of hotel-planning should be these: 1. The maximum quantity of light and air. 2. A simple and direct plan. 3. A proper distribution of the working and managerial parts of the hotel. 4. Easy and direct service to the public and private rooms. 5. Centralisation of the kitchen and offices. 6. Perfect sanitation. 7. Proper means of escape from fire and panic. 8. The lounge is a modern addition to an hotel; but no first-rate planner would omit it. It is the popular place for afternoon tea, and for coffee and a cigar after dinner.

The art of writing on glass, as it flourished amongst our forefathers, is now fallen mostly into the hands of amateurs. Had it not, a verse follows which might well be painted up in a conspicuous place by the designers of windows liable to be so decorated:

"Should you ever chance to see
A man's name writ on glass,
Be sure he owns a diamond,
And his parcels own an ass!"

But these days were passed before most of us were boys.

ARCHITECTURE AT THE ROYAL ACADEMY. II.

We referred last week to the large number of good details displayed this year, much to the advantage of the exhibition. Among them is the facade of Messrs. Burleigh's premises in the Haymarket now being erected by Mr. Walter Cave (1719) whose drawing given by us to-day is from the pen of Mr. P. D. Hupworth. The refinements and good proportions displayed in this treatment of a street architecture, light as all such elevations must be by the exigencies of business, are very satis-

factory, and the building seems free from all pretension to novelty for its own sake, which is a gain. The details of Homerton Public Library (1738), and a design for Stockport Police-Courts (1717), shown by Mr. Edwin Cooper, rank among the best of their kind, and exhibit breadth and directness of idea. These same qualities, in quite a different way, are conspicuous in the large coloured scale facade of Sir Ed. Speyer's house in Grosvenor-street, S.W. (1728) by Messrs. Detmar Blow, and F. Billery, the architects, also, of Lady Agnew's well-planned mansion in Smith-square, Westminster, on a site awkwardly placed in the angle, involving difficulties which have been ingeniously mastered, so that it is a pity the plans were not shown with the perspective (1726). With the first-named drawing, the pair occupy a central place in the gallery, one on either side of the County Hall Council Chamber referred to last week.

Professor Beresford Pite shows a detail of the Piccadilly end of the Burlington Arcade (1544) to which he has skillfully added quite lately an upper story, with coupled columns and recessed fenestration, set below arched soffits, which are coffered, and look suitable. Large consoles, arranged buttress way, sit on to the old end piers of the ground stage, and neatly enclose the composition. The drawing gives the impression that Professor Pite is responsible for this entire frontispiece; but the main original part was designed by Ware, who erected the arcade in 1815. Messrs. E. T. and Stanley Hall's detail of their competitive design for Marylebone Town Hall (1751) was described by us at the time of the contest as a fine drawing of a creditable piece of architecture. The remark is equally applicable to Messrs. Warwick and Hall's premiated design for the Cornwall County Offices, Truro (1748), hung nearer the line, and so better seen. Mr. Henry J. Chetwood's proposal for the Cardiff Technical Institute (1549) merits its place, and we are glad to see the premiated design for Queen's University extensions, Belfast, by Messrs. Clapham and Tanner (1550) has obtained recognition. Messrs. Percy Adams and Holden's final design for the Manchester Art Galleries (1554 and 1721) is represented well by both view and elevation. Mr. P. S. Worthington's perspective (1568) for the same work is also well hung. The view (1724) by Mr. Robert Atkinson, of his Manchester Art Gallery scheme, occupies the post of honour above the line at the West End of the room. The accepted design for the Stockport Police Courts is exhibited by Messrs. Halliday and Paterson (1569).

Hung much too near the skyline, we notice Mr. Frank Pearson's new wing for Sidney Sussex College, Cambridge (1556) with a handsome entrance to the cloisters from Jesus-lane, and having a bold oriel above, giving distinction where it was needed. The National Library of Wales, Aberystwith (1561) is unnamed in the catalogue; but we gather the drawing must be shown by Mr. Sydney Greenslade, the architect, though it is too slight a pencil view to realise adequately the scale and skill of design so inherent in the actual work. Messrs. A. W. S. Cross and Hubbard are represented by a forcible design, vigorously drawn, submitted for the Pearl Life Assurance Company's buildings in Holborn (1563), and for the same undertaking Professor Beresford Pite occupies a prominent place, with his bold elevation, centred by an enormous tower of square outline in a Classic phase (1710), at the other end of the gallery. St. Andrew's Hall, Reading, by Mr. Charles S. Smith, is well shown in pen-and-ink (1564), its chief feature being a big

octagonal turret; but no plan is given to indicate its use. "A Study for a Royal Memorial in Parliament Square" (1569), by Messrs. Lanchester and Rickards, displays unbounded fertility of fancy—clever enough, no doubt; but we venture to hope that Parliament-square will not be furnished quite in the fashion. The little Bank at Matlock (1373), which we illustrate to-day from Mr. Langham's water-colour, hangs hard by, and just above it is Mr. E. P. Warren's Radcliffe Infirmary additions, Oxford (1580), with pedimental ends to the plain wards. Messrs. Weymouth and Easton show an odd sort of erection for the King, called "Belvedere Fort," in Windsor Great Park (1584). No. 16, Avenue-road, Hampstead (1587) is a good Georgian sort of house in red brick, by Messrs. Field, Simmons, and Faulkner, the same firm showing a capable row of mansions, faced with stone, in Devonshire-street, W. (1760); but this last-named clever elevation is badly skied. Mr. Dixon Spain sends a pleasing little house at Harpenden (1583), and Mr. Andrew X. Prentice, near it, shows "Lyndhurst," Greenock (1588), in a frame of two outline views of a tastefully-designed county place built in stone. "Notgrove Manor," Gloucestershire (1597), and "Top Farm," Wiltshire, Worcestershire (1606), by the same architect, are more important in extent, but display the same welcome reserve and recognition of the restrained character of the picturesque, rightly handled. Sion Hill, Thirsk, Yorkshire (1612), has the same quality of graceful repose, though the plan sets out a big house of no small interest. The architect, Mr. Walter Brierley, F.S.A., is to be congratulated both on his design and also on his good fortune in having it so capably drawn for exhibition. Our reproduction to-day includes a key diagram of the main plan. Mr. George Nott has drawn his design for a house at Leicester (1613) in a very original manner, well befitting so unusual a building. The style of Mr. Nott's work is skilful, and eminently adapted to plain brickwork, picturesquely handled on Gothic lines, but avoiding suggestions of fussy "Medievalism" in detail. Kelling Hall, Norfolk (1636), by Mr. E. Brantwood Maufe, and Pethenalls, Cornwall (1638 and 1641), by Mr. Philip A. Tilden, are both excellent examples of contemporary domestic work. Mr. Goodhart Rendel shows two other houses of characteristic quaintness at Braunston (1604), and in Rutland (1617). The Village Hall, Nettleden, Oxford (1619), represented by a forcible pencil sketch, is in every way creditable to Mr. Charles E. Mallows's facility of design. Mr. Guy Dawber has only one work this season—the Church Hall, New Brighton, Cheshire (1681), a red-brick building, boldly set out with a suggestion of Belgian influence, but quite plain, and mercifully devoid of any turret. The handsome water-colour adds to the interest of the subject.

The Pusey House, Oxford (1693), is to be extensively increased by building on the new site recently acquired. The additions will include a frontage in St. Giles-street of over 150ft., as seen by the plan on the drawings which the architect, Mr. Temple Moore, sends. The chapel extends from front to back of the great quadrangle, and including the front and rear buildings. The style is Edwardian, well adapted to the purpose of the institution, and in accord with the precincts of the University. Mr. Temple Moore is also the architect of The Hostel, Springfield Mount, Leeds (1694), already partly built for the Community of the

Resurrection. The Gatehouse tower in the centre of the main building, overlooking the quad, has a richly treated criel in stone, giving an air of monumental importance in contrast with the more severely managed side-wings, suggesting, nevertheless as they do, a sense of hospitable comfort and restfulness. A range of dormers round the garth follow precedent, and look pleasing enough. The chapel has not yet been added.

Before reverting to the church work, which is grouped together chiefly on the same main wall of the gallery, there are a few commercial buildings to be mentioned, such as the Atlas Insurance Offices at Birmingham (1748), and the Prudential Assurance building at Grimsby (1747) by Mr. Paul Waterhouse. The former is the more important of the two, and is designed with corresponding scale. We shall illustrate both shortly. Messrs. E. V. Harris and T. A. Moodie show some commodious premises in Duke-street, St. James's (1744), with a handsome facade, and also a first-rate model of their Glamorgan County Hall, Cardiff, showing the elevation to King Edward's-avenue. The appropriate design of this building is made evident, and the scale adopted is consistently adhered to, with tasteful detail enhancing the effect. Mr. Henry Tanner's design for Oxford Circus, already completed on the east side, is shown by a large perspective view looking down Regent-street (1742). Messrs. W. and E. Hunt exhibit a good facade in Mortimer-street, W. (1718), and a block of Business Premises in Doncaster High-street (1712) is by Mr. Sydney D. Kitson, M.A., of Leeds, who well understands how to invest a comparatively limited frontage with a broad, tastefully ordered Classical elevation having a colonnaded and recessed centre, the doorways being placed on the extremities of the frontage, and thus widening out the composition. Gresham College, by the joint architects, Mr. S. Perks and Mr. D. Watney (1543) is hung too high to be well seen, and there is no plan. The lower portion is rusticated with a segmental pediment above on the main front. Mr. S. Tatchell is adding a house in Harley-street (1585), and Mr. W. H. White is recasting another residence in the same thoroughfare (1750), in quite a successful way. No. 30A, Wimpole-street, is being brought up to date by Messrs. Banister Fletcher and Sons (1752) in a pleasing style. Mr. Arnold Mitchell is represented by his North-Western Polytechnic, Kentish Town (1749), and Prof. Charles Reilly has the women's wing to the Students' Club, Liverpool, shown in good detail (1754). A pleasing and delicately-managed colour sketch is sent by Messrs. Oliver, Leeson and Sons, of the Cemetery Buildings, in granite, for Whitley Bay, Northumberland (1667). It is hung on the line, and near to it is a Church Institute design (1668) of odd quaintness, by Messrs. Rogers, Bone, and Coles, which is rather good. There are not many interior treatments on view in the gallery; but the Hall at Ottereshaw (1602), by Mr. David Richter, obtains a central position by the merit of its skill, both as a design and a picture in good colour.

Among the churches to be named, there is the selected design for St. Luke's, West at Ottereshaw (1676 and 1688), shown by two dashingly-coloured perspectives from Mr. Charles Gascoyne's brush. A plan is added, showing a proper recognition of the needs of modern worship in buildings of its class. Messrs. E. E. Lofting and E. P. Cooper are the architects. St. Alban's, Chestwood, was built from the plans of the late J. S. Crowther, well known as a capable archi-

tect. The tower is now to be completed, and Messrs. John Gibbons and Son, of Manchester, show how this is to be done (1667) in a very clever and appropriate way. The Church of the Annunciation, Old Quebec-street (1671 and 1674) by Mr. Walter Tapper, is illustrated by two of Mr. Gascoyne's water-colours. They show a one-aisled nave, with groined ceiling, and a large east window of rich detail and good proportions, also a lofty clerestory rising above a bold and handsome stone arcade of traditional character. Flying buttresses occur over the aisle, and on the street side, to the south, the thrust of the vaulting, presumably, is taken by big vertical buttresses. There is a gabled turret at the east end of the north aisle. Brick is mainly used outside, and the church appears to be a work of much interest. Mr. H. A. Matear exhibits the big details of Holy Trinity, Southampton (1673), which were illustrated in the BUILDING NEWS for Dec. 20, 1911. St. Margaret's Church, Upton, Norfolk, and St. Nicholas, Potter Heigham, Norfolk, are to be restored from plans by Mr. William Davidson, of Edinburgh, who shows some very nice drawings of them (1672 and 1679). Mr. Francis Doyle has but one exhibit, the Church of St. Barnabas, Messley Hill, Liverpool (1639), and the same with Mr. Fellowes Pryne, whose interior of St. Martin's, Worcester (1647), serves to recall his former able church work. St. Faith's Church, Nottingham (1649), by Mr. E. A. Sudbury, and St. Andrew's, Cuslodon (1651), by Messrs. Greenaway and Newberry, are both excellent. As to Mr. Maurice Pocock's bird's-eye fancy sketch for an Abbey Church (1654), it is no doubt a freely handled, ideal conception, and certainly large, but hardly of good design. It is very different, any way, from Mr. W. D. Caroe's Church of Stanley St. Peter, Wakefield (1655) next below on the line. The Bernard Wilson Memorial Church, Milton, by Messrs. J. O. Scott and Son (1657-1675) is a typical building, thoughtfully detailed, and so is the Rood Screen at Netheringham Church, well drawn also in pen and ink (1658), by Messrs. H. Bailey and D. Wood. The Congregational Church, by Mr. H. V. Wolstenholme at Fairhaven (1666) avoids pretensions, and looks suitable. The Baptist Chapel at Nottingham, by Messrs. Sutton and Gregory (1669), has much merit, for the same reason. A new Roman Catholic Church at Aldershot is represented by some drawings of a design for it by Messrs. H. R. and B. A. Poulter (1670-1656), cleverly adapted to the sharp-angled site, and treated in a severe style. Uganda Cathedral, with its forest of columns (1687), is shown by a perspective of the choir, having canopies over the stalls, and tie-rods to the arcades graphically drawn by its architect, Professor Beresford Pite. The chapel of All Souls, Bedford Park (1698), erected from the designs of Mr. Maurice B. Adams, is represented by a pen-and-ink view, showing the brick-vaulted interior and stone arcades. The Lutheran Church, Port Elizabeth (1708), found a place, doubtless because it came all the way from South Africa. St. George's, Church, Madrid (1642-1686), of which Mr. Edward M. Gibbs, of Sheffield, is the architect, St. Boniface, at St. Budeaux, Devon (1664), with its bold Western tower built the width of the nave, and its pleasing belfry, by Mr. W. D. Caroe; and Christ Church, Sutton, new tower and baptistery (1660), sent by the architect, Mr. Douglas G. Round—all justify their position in the exhibition, in which we miss work by many well-known men who usually send.

BRICK ORNAMENT.—V.

GARDEN-WALLING, BALUSTADING, AND OPEN TERRACE-WORK.

The above positions are several to which the systems of ornamentation previously described can be most satisfactorily adapted, that, too, with considerable improvement upon the majority of work seen around us to-day. Even the commonest garden-wall of the most elementary type might be turned into something largely picturesque by some of the most inexpensive methods, obviating any special cutting, or extra work, if complicated or elaborate patterns and combinations are not used in their construction. A little simple and carefully-set patterning—or raised and sunk work—often looks



Garden Walling with Light Relief and Mosaic Relief.

FIG. 1.

better than the more complicated designs, and such might undoubtedly be used with practically no increase in cost upon ordinary plain brickwork, in many instances. Walling to front and back gardens, from cottages, semi-detached villas, etc., to the more pretentious boundary-walls of the detached or country residence, are well worthy of more careful study in these respects than are usually deemed sufficient. They all form part of a general scheme of design—or, more properly speaking, should do. In country-house work "Brick Ornament" is readily adapted to many other branches of construction, especially when openwork patterns are utilised; such as, for terracing, garden pavilions, or summerhouse work, etc., it is specially useful, and these might usually be vastly improved thereby. If carefully studied, it might be introduced with many

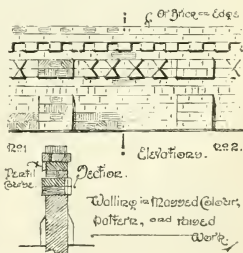


FIG. 2.

beautiful effects. It cannot really be argued in favour of the ordinary, blank, ugly, cast-iron, prison-looking boundary walls thrust on everyone in large cities and towns—particularly the workers—that such are imposed by a relentless necessity, on account of "cheapness," the first great essential. Such is not the case; it is really due to sheer ignorance, lack of knowledge, application, or work not being placed in the right hands. Further, any excuse is supposed to be better than none in such quarters. Regarding the illustrations to this article, the construction involved by some would prove not only as cheap, but, in one or two cases, slightly cheaper, than solid walls, as there would be a considerable saving in bricks, mortar, etc., where the work extended over a large area—such as large blocks and many streets, as it often does in estate development. The

application, too, of a little alternated and carefully set open work at the top of high, or fairly high, walls, would be a great relief from so much of the monotony and dreariness seen everywhere by blank, blank, and yet again

the atmosphere, too often has a corrosive effect on the mortar, which would still further weaken it. In all such positions the open-work coursing and a few below should

include something of a heavier type, such as illustrated, for example, by Fig. 7, with broader piers between the openings and a heavier capping piece. Or smaller panelling, such as shown on Fig. 17, with about double or treble the panel spacing, as might be necessary.

For purposes of simple garden walling most of the designs illustrated previously in former

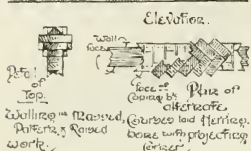
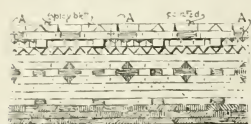


FIG. 3.

blank, walling, often to the extent of miles.

There are several points which require careful consideration in the use of pierced brickwork. A certain amount of weakness being assumed by the perforations, it therefore requires designing with intelligence for

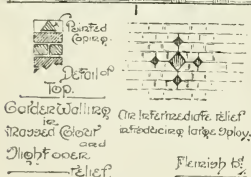
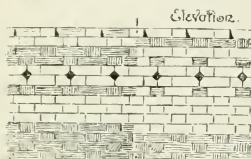


FIG. 4.

the particular position it has to occupy. It is not to be expected that such light and essentially garden-work as shown by illustrations 5, 6, 8, and 9, for instance, would be erected in exceptionally exposed positions where they might be subject to occasional attacks from cars, or heavy obstacles being moved in and out. This often occurs with some residential boundaries adjacent to commercial premises, etc. In such positions a



FIG. 5.

little perforated work might be well enough introduced, but it would require to be in small and more widely-spaced panels. The same applies to such work introduced at the top of high walls in very exposed positions, open to heavy winds, or on coast sites, where



FIG. 6.



FIG. 7.

always be set in an extra cement composition. For ordinary garden-walling, particularly suburban and country work, or terracing, it would be quite safe and sound in any good average cement mortar, especially

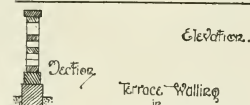
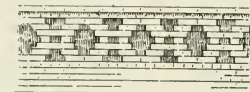


FIG. 8.

with the perforated panelling introduced between a couple of good solid angle-blocks, varying from 2ft. or 3ft. or more, as circumstances might require. A fairly wide wall



FIG. 9.

space on each side is also preferable, as giving a greater relative value to the panelling. As such work, however, approaches more exposed situations it has to be utilised with greater discrimination, by

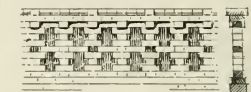


FIG. 10.

articles can either be readily adapted or partially so. These can be applied either in pure line and pattern reliefs alone, or with a little occasional raised and sunk work as well, picking out certain features, or by forming another alternated pattern at fairly wide intervals, thus producing simple combined patterns in three or four methods, with a massed colour plinth, something after the style illustrated by Fig. 1. This, like most of the previous designs, can be easily executed in the regular bonds, requiring no variation of came or cutting. Fig. 2 illustrates a fresh composition, with the pointed coping brick, using the splay bricks as steps. A slight variation of bond is required here to pick up the coursing; but this can be readily arranged by the use of Queen closers, and

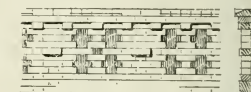


FIG. 11.

thus obviate cutting. Fig. 3, as shown, would require a little occasional cutting with the capping and alternate pointed dentil course; but even this could be dispensed with by studying the coursing out a little more and by producing a slightly more elongated pattern. The pointed dentil course above the pointed coping bricks is formed by the projected corners of bricks laid herring-bone fashion—a style used in 18th and early 19th century work, although not to a very large extent. Latterly it seems to have gone quite out of "fashion," being rarely used at

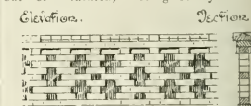


FIG. 12.

present. Its chief objection when used, as seems to have been the custom, in a long, continuous course, is that it becomes somewhat monotonous. If alternated at all, it required a good deal of expensive cutting in making up the interior bond of the wall. A great deal of this—in some cases, all of it—could be dispensed with by using the splay-bricks for such making-up purposes. The herring-bone dentil is a very handy form for obtaining a little ornamental effect with an ordinary square-edged brick; being readily

adapted, easily arranged and set, can be used for many positions. Fig. 4 illustrates a design adapting the small chamfer-edged brick. This has not been illustrated

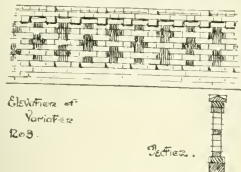


FIG. 13.

previously; but by its use a far finer form of pattern relief is obtainable than by means of the larger species of moulded bricks illustrated before. It is worthy of particular note on this account, as it could also be utilised for raised and sunk work, although with the latter it involves a specially-cut piece of a half-brick, rubbed on one face. The pattern given by it is very neat, and it would be well worth this little extra trouble for many positions where a little finer pattern-work would be preferable, particularly in conjunction with the intermediate relief shown on the same figure. The next illustration, as will doubtless be observed, shows the adaptation of the double-cross pattern to

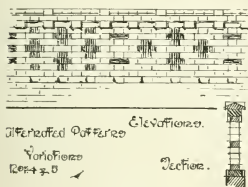


FIG. 14.

open work, seen previously by the other methods in former chapters. It should illustrate clearly enough how the majority of former patterns may be readily adapted to this method of ornamentation also, forming quite a different style, producing a totally different, and, at the same time, exceedingly picturesque, effect. It should be needless to observe that such work is preferably constructed in 9in. depth, although in some few cases, perhaps, a little could be arranged with open-work patterns in 4½in. walls, set in cement, where the cost might prove very essential. The latter size walls could be combined with occasional 9in. piers also.

Fig. 6, for instance, requires 9in. work, whilst something after the style of Fig. 7 would be pretty sound in 4½in. A variation from the well-known diamond pattern is illustrated by Fig. 8, producing quite a nice piece

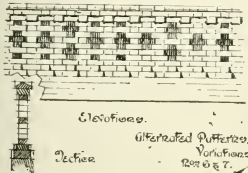


FIG. 15.

of ornamental work when broken occasionally with blank wall-space or studied pier-angles, etc. The first illustration on Fig. 9 shows another variation of the same pattern,

producing a stronger alternated panel with raised work. The second and third variations on this figure illustrate other designs for light walling of a similar character. With either of the last three or four patterns, greater strength would, of course, be given by increasing the width of the

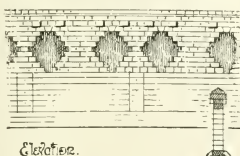


FIG. 16.

brickwork between the openings, and forming slightly deeper capping-courses where such might be necessary. A combination of pairs, or a group of three diamonds, after the style shown by Fig. 9, with equal wall-space between, corresponding to the panning, would really form a very strong wall in cement, quite suitable for most purposes, from this point of view. The same principle applies to the other designs also. Figs. 10 to 15 illustrate continuous masses or varied patterns of somewhat similar design, but producing quite different effects, combined with walling of different degrees of stability, as will be seen. Such points require careful noting with regard to application according to sites, etc., as previously alluded to. This sequence of patterns illustrates clearly

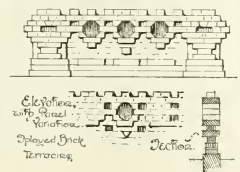


FIG. 17.

enough how others on similar lines may be arranged and varied considerably in the production of different designs. Fig. 16 also illustrates how quite different effects are obtainable by even slight variations in the diamond pattern and by different grouping, etc. By introducing the linked panel, for example, combined with raised and sunk work, played or moulded bricks, quite a different style of design is again obtained, as shown by Fig. 17. Of a somewhat similar

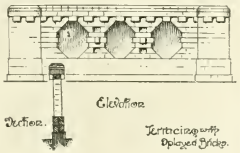


FIG. 18.

type is the design illustrated in Fig. 18; but by using the splay bricks in pairs a longer diagonal line is produced, thus giving another and quite different spirit or character to the work. With this branch of "brick ornament" again, there are possibilities of considerable development beyond the few designs illustrated here. The moulded brick, especially, is particularly adapted to

such work. With perforated panelling, there is, of course, no special filling or contrivance required, as in the case of some solid wall-work. Used as a perforated frieze-course, for instance, around a garden pavilion or summerhouse, in combination with raised and sunk work and pattern lining, not only exceedingly picturesque results are possible, but some really beautiful work of this nature might be executed. Another position to which it could very well be adapted and introduced with advantage would be in louvres, etc., which might either be glazed or, if used for ventilating purposes, fitted with louver-boards. So used for openings in turrets or towers on various buildings, many novel features could be introduced, both original in design and ornamental. W. G. KERBY, Architect.

(To be continued.)

THE ANNUAL REPORT OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The annual report of the Council of the Institute for the official year 1911-12, submitted at the meeting held on Monday evening, states that the losses by death have been as follows:—Hon. Fellow: Sir Francis Sharp Powell, Bart.; Fellows: Henry Bloomfield Bare, Franc Sadleir Brereton, William Glover, Alexander Graham, William Henry Hill, George Gordon Hoskins, Francis William Humphreys, Robert John Macbeth, Duncan McNaughtan, Dr. John Samuel Phené, James Pigott Pritchett, George Ransome, William Forrest Salmon, Charles Smith; Retired Fellows: Frederick William Albury, Elijah Hoole, James Radford; Hon. Associate: Edwin Austin Abbey, R.A.; Associates: Sydney Bridges, John Codd, William King Lucas, John Bevan Phillips, William C. Poole, Thomas Miller Rickman, Henry Shackleton; Licentiates: John Davidson, Harry Edward East, Gascoigne Hastings Fowler-Jones, William Pickels, Edward Ashby Smith, Wilfrid Travers Wire; Honorary Corresponding Members: Fernand de Darlein, Pierre Jérôme Honoré Daumet, Alexander von Wieleman.

The Royal Gold Medal was awarded last year to Dr. Wilhelm Dörpfeld, F.S.A., in recognition of his eminent services to architecture through his archaeological researches. It has been decided to award the Medal this year to Mr. Basil Champneys, F.S.A., in recognition of the distinguished merit of his executed work in architecture; the Medal will be presented to Mr. Champneys at the general meeting on June 24.

The following tabular statement shows the present subscribing membership of the Royal Institute compared with corresponding periods of 1909, 1910, and 1911:—

| Year. | Fellows. | Associates. | Licentiates. | Total. |
|-------|----------|-------------|--------------|--------|
| 1909 | 888 | 1,344 | 46 | 2,278 |
| 1910 | 874 | 1,431 | 48 | 2,353 |
| 1911 | 862 | 1,520 | 50 | 2,432 |
| 1912 | 862 | 1,520 | 50 | 2,432 |

During the official year since the last annual general meeting, 12 Fellows have been elected, 108 Associates, and 2 Honorary Associates. The Council have decided to consider the situation which arises from these figures. The period for the election of Licentiates has been extended to the end of June, 1912; at the present moment a total of 1,834 Licentiates have been elected, and many other applications are under consideration. Since the publication of the last annual report the Council have admitted the Northamptonshire Association of Architects into alliance with the Royal Institute.

In the last annual report the Council outlined the steps that had been taken to secure united action by the Royal Institute and the Society of Architects in advancing the policy of Registration. Legal and constitutional difficulties made it necessary to lay before the members a proposal to obtain the sanction of the Council for a Supplemental Charter and By-laws conferring the necessary powers on the Royal Institute. The Council's proposals for this purpose were

land before a special general meeting on January 8, 1912, and an amendment was carried referring them back to the Council for further consideration. The Council at once appointed a strong and representative Registration Committee to consider and report upon the question, and this committee is now actively at work under the chairmanship of Mr. John Slater.

The new Copyright Act, 1911, the privileges of artistic copyright are for the first time extended to works of architecture. The Board of Professional Defence have held a number of meetings, and have given advice to members on questions of a legal nature. They have given attention to several recent judicial decisions which have appeared to enlarge the legal responsibilities of architects, and the possibility of safeguarding the profession against hitherto unforeseen dangers is being carefully considered. The Professional Questions Committee have considered a number of cases referred to them from time to time, and have advised the Council upon them. The Council are now considering the advisability of drawing up and publishing a code of professional ethics for the guidance of members. The Council have been engaged for some time upon the revision of the schedule of charges. The Councils of the Allied Societies in the United Kingdom have been consulted in the matter, and it is hoped that the draft will be ready for submission to the general body at an early date. During the past year this committee has been in communication with the Allied Societies with the object of bringing the architects' attention to hear on the town planning schemes that are being prepared throughout the country. It has already prepared and published a pamphlet for the guidance of promoters of such schemes.

The Henry Jarvis Bequest is now in the hands of the residuary trustees, and the Council have advised them, under the terms of the will, to apply the available income to the foundation of Jarvis Studentships at the new School of Architecture at Rome (on which the Institute is represented by Messrs. Reginald Blomfield and J. W. Simpson). If the Council's proposals are accepted there will be an annual examination for the studentship, which will be open to all Students and Associates of the Royal Institute of British Architects under the age of 30 years, and one studentship will be awarded every year, of an annual value of about £180, and tenable for two years. Reference is made to the recent establishment of a new British School at Rome.

The Joint Committee on Reinforced Concrete has compiled and published a second report on reinforced concrete. It has also considered the London County Council's draft Regulations for Reinforced Concrete Construction, and has reported upon them to the Council, who have submitted various criticisms and suggestions to the Local Government Board, whose sanction is required for these regulations.

The Progressive Examinations were held in June and November, 1911. The Preliminary was held in London, Bristol, Leeds, Manchester, and Newcastle-on-Tyne; the Intermediate in London, Bristol, Leeds, Manchester, and Newcastle-on-Tyne. The Final and Special Examinations were held in London, and the Special Examination for Colonial candidates in Johannesburg, Sydney, and Toronto. Results are shown in the following tabulated form:—

| | | | | |
|--|-----|-----|-----|-----|
| Preliminary Examination | | | | |
| Admitted. Exempted. Examined. Passed. Relegated. | | | | |
| 341 | 81 | 160 | 123 | 37 |
| Intermediate Examination | | | | |
| 242 | 7 | 127 | 120 | 107 |
| Final and Special Examinations | | | | |
| 235 | 235 | 115 | 120 | |

The Ashpitel Prize was awarded to Philip Dalton Hepworth, who passed the Final Examination in November, 1911.

Since the issue of the last annual report the Council have appointed the following gentlemen to represent the Royal Institute representatives in connection with the various bodies indicated:—

The Council of the reconstituted British

School at Rome, Mr. Reginald Blomfield, A.R.A. (F.), and Mr. John W. Simpson (F.).

Incorporated Joint Committee on Water Regulations, Mr. Max Clarke (F.).

Third International Congress for Sanitary Dwellings, Mr. Raymond Unwin (F.).

Deputation to confer with Sir George Reid, High Commissioner for Australia, re the Australian Capital Competition, Mr. Leonard Stokes (F.), Mr. Henry T. Ilare (F.), and Mr. H. Lancaster (F.).

Council of the International Smoke Abatement Exhibition, Mr. Edwin T. Hall (F.).

Conference with the Lord Mayor on the future of the Crystal Palace, Mr. Wm. Woodward (F.) and Mr. Edwin T. Hall (F.).

The Royal Sanitary Institute Congress, York, 1912, Mr. Edwin T. Hall (F.) and Mr. John Slater (F.).

Smoke Abatement Conference, Manchester, Mr. Percy Worthington (F.) and Mr. Edgar Wood (F.).

Conference with representatives of the English Forestry Association, Mr. Alan E. Munby (A.), Mr. Ernest Newton (F.), and Mr. Max Clarke (F.).

Council of the University of Liverpool (three years), Mr. Henry Hartley (F.).

Inaugural Meeting of the London Society, Mr. H. W. Wells (A.).

National Conference on Details of Town Planning Administration, Mr. Raymond Unwin (F.).

250th Anniversary of the Foundation of the Royal Society, President for the time being.

Council for the National Registration of Plumber, Mr. H. D. Searies-Wood (F.).

Since the issue of the last annual report the Council have made the following grants:—Library fund, £150; Architectural Association, £100; Architects' Benevolent Society, £100; Architectural Association Sketch Book, £25; Royal Architectural Museum, £21; British School at Rome, £21; British School of Archaeology (work in Egypt), £10; and Incorporated Joint Committee on Water Regulations, £5 5s.

The Competitions Committee have had under their consideration the conditions issued by various promoters, and in cases where the conditions have been unsatisfactory, the promoters have been communicated with and urged to modify them. In the case of the competitions for the Australian Federal Capital, Oakwood-Ascham, Warrington, and Blackwood Hall, the committee's efforts to obtain satisfactory amendment of the conditions having been unavailing, the Council have warned Members and Licentiates not to take part in them. The following have been the President's nominations to Assessors during the official year:—

Technical Institute, Cardiff, Mr. James S. Gibson.

New Fire Brigade Station, Cardiff, Mr. A. Marshall Mackenzie.

School, Dovercourt, Mr. Paul Waterhouse.

New Hospital, East Sussex, Mr. Edwin T. Hall.

Church, Felixstowe, Mr. Gerald C. Horsley.

Enlargement and Alterations of Public Offices, Harrow-on-the-Hill, Mr. William Flockhart.

School, Newcastle (Walker Gate), Mr. John Bilson.

New Baths, Northwich, Mr. F. T. Bagallay.

Parish Church, Nottingham (Carrington), Mr. E. S. Prior.

Baptist Chapel, Nottingham, Mr. Herbert W. Wills.

New Council Offices, Portland, Mr. A. Needham Wilson.

New Infirmary Buildings, Stockport, Mr. Herbert W. Wills.

Elementary Schools, Walsend-on-Tyne, Mr. A. W. S. Cross.

New Buildings for Children, Willesden, Mr. A. W. S. Cross.

The President accepted an invitation from the Government of Manitoba to act as Assessor in the competition for the new Legislative Buildings in Winnipeg.

REPORT OF THE BOARD OF ARCHITECTURAL EDUCATION.

Mr. Reginald Blomfield has acted as chairman of the board, Sir Aston Webb and Mr. Lewis Solomon as vice-chairman, Messrs. Ernest Newton and John Slater as honorary secretaries. In November, 1911, the Council approved of a recommendation of the board that the Slade Professors of Fine Art at the Universities of Oxford and Cambridge, and Professor A. Beresford Pite, of the Royal

College of Art, should be invited to become advisory members of the board, and the board's invitation was accepted by these gentlemen. The board has drawn up a detailed scheme, which has been approved by the Council, for the examination of Licentiates desirous of becoming Fellows, and the first examination will be held at the end of June. The examiners appointed to conduct the first examination are:—Mr. Reginald Blomfield, A.R.A. (chairman of the board), Sir Aston Webb, C.B., C.V.O., R.A. (past president), and Mr. Henry T. Ilare (hon. secretary). The board has had under consideration a revision of the syllabus of the Intermediate and Final Examinations. Many important modifications therein have been made and approved by the Council. A scheme of problems in design has been instituted to take the place of the old Testimonies of Study for the Final Examination, and the first sets of drawings were submitted for the approval of the board at the end of February. Other designs will be sent in every two months, and each candidate for the examination is required to submit four of such approved designs as Testimonies of Study before being admitted to the examination. The Allied Societies are co-operating with the board in carrying out this scheme by examining the designs in their respective localities. Eighteen sets of designs for the first subjects set by the Institute have been received by the board, and eight of them have been approved. The board has selected some of these approved designs and has sent them to the Allied Societies as examples of the standard of the students in answer to the design problems. The various alterations in the examinations will come into operation in November next. The board has recommended the Council to require that the work of students at the recognised architectural schools who claim exemption from the Intermediate Examination shall have been examined and approved by an external examiner appointed by the school, such appointment having been previously approved by the Council. This recommendation has been approved by the Council, and a communication embodying this decision has been sent to the heads of the various universities and schools. A committee of the board, appointed at the request of the Council, has drawn up a scheme for the award and tenure of a Scholarship in Architecture at Rome, instituted in 1851 by the Royal Commissioners of the 1851 Exhibition, and the scheme has been approved by the Commissioners. The board draw special attention to the valuable new studentship which the "Jarvis Bequest" has enabled the Institute to found. A scheme for this studentship has been drawn up by a sub-committee, and has been approved by the board and forwarded to the Council.

REPORT OF THE ART STANDING COMMITTEE.

Mr. Ernest Newton, A.R.A., has acted as chairman of this committee, Mr. W. Flockhart as vice-chairman, and Messrs. W. Tapper and Mr. W. A. Forsyth as honorary secretaries. The committee recorded with satisfaction the successful issue of their efforts on behalf of the Deceased Almshouses at Shorefield. The recommendations of the Council on the subject of the new St. Paul's Bridge were adopted by the City Corporation, and expert advice was taken on the whole matter. The subject of the uniform treatment of street name-plates in London has been further dealt with, and the Council of the Royal Institute have obtained an expression of opinion on the matter from borough and city councils in London. These opinions, although not unanimously in favour of a uniform treatment, were generally sympathetic. Representatives of all the civic authorities of London have been invited to a conference to be held on the Institute premises, to discuss the matter. The committee's inquiries were directed towards the matter of the English bridge at London Bridge. The corporation of that town have decided to widen the bridge, and not to replace it with a new structure. The threatened demolition of an

extremely interesting half-timber house in the same town is now engaging the attention of the committee. The committee have been engaged upon the consideration of the injurious effect of public boardings upon English landscapes. At the suggestion of the committee, the Council expressed its approval of the efforts made in this direction by the New Malden, Surrey, District Council. The Society for Checking the Abuses of Public Advertising invited the Royal Institute to criticise and make suggestions upon the Bill which is about to be promoted in Parliament, to extend the existing Advertisements Regulation Act. The art committee recommended the Council to lend the weight of their general support to the measure. The sale of Tattersall Castle and the subsequent removal of the stone mantelpieces once again emphasised the necessity for adequate legislation for preventing such regrettable occurrences. The National Trust for Places of Natural Beauty invited various societies to discuss the question. A conference was held which the President of the Royal Institute and a representative of the art committee attended. A draft measure extending the powers conferred by the existing Ancient Monuments Act was prepared, and is about to be presented to Parliament. The recent proposal made by His Majesty's Government to decentralise the Department of Archaeology in India was considered by the committee to be detrimental to the effective control and the preservation of the ancient monuments of that country. A memorial was forwarded to the Secretary of State urging that no change be made in the existing organisation. It is gratifying to record that this view of the matter has been adopted by the Government. The interest of the trustees of the Cornham Almshouses, in Wiltshire, to dispose of their property, on the ground that the income is insufficient to meet the cost of maintenance, was brought to the notice of the committee. A good deal of expert, practical information was obtained and laid before the Council. The secretary of the Royal Institute was instructed to write to the Charity Commissioners that the Council hoped that no alterations would be made to the existing buildings.

REPORT OF THE LITERATURE STANDING COMMITTEE.

Mr. Edward Warren, F.S.A., was elected chairman of this committee; Mr. Charles Sayer, vice-chairman; Messrs. P. Leslie Waterhouse and Theodore Fyfe, honorary secretaries. The recommendation of the committee, adopted by the Council, that the Webb drawings at Worcester College, Oxford, should be photographed has been now carried into effect. Mr. Gotsch, who undertook the selection of the drawings to be photographed, has also prepared a catalogue of this important collection. A sub-committee has also been appointed to consider the question of the valuation of the contents of the library for fire insurance, as well as a scheme for providing more adequate safeguards for the protection of the library against fire. During the twelve months ending March 31 of the present year, 574 volumes and 66 pamphlets have been added to the library of the Royal Institute, exclusive of periodicals, reports, and Transactions of societies, and parts of works issued in serial form. The number of works presented was 458 volumes and 66 pamphlets. The number of works purchased comprised 10 volumes, of which 42 were added to the loan library. The attendance of readers in the reference library numbered 5,554. The number of books issued on loan was 3,786.

REPORT OF THE PRACTICE STANDING COMMITTEE.

The chairman of this committee is Mr. H. D. Seares-Wood; vice-chairman, Mr. Wm. Woodward; and honorary secretaries, Messrs. Herbert A. Satchell and Matt. Garbutt. Since the date of the last annual report, prior to the end of last session, the sub-committee which had been engaged on the question of revising the schedule of charges presented their report. The pro-

posed new schedule drawn up by them, after being carefully considered by the committee, was forwarded to the Council with an urgent recommendation for its adoption at as early a date as possible. The proposed new schedule is now receiving the consideration of the Council. The importance of removing some of the admitted deficiencies of the existing schedule is emphasised by the fact that, of the large number of difficulties arising in practice which have been brought before the committee, at least one-third have dealt with questions of professional charges. As a outcome of many difficulties experienced by members, arising out of the use of the R.I.B.A. Conditions of Contract, of recent legal decisions affecting the liability of architects under these Conditions, and of certain suggestions made by Messrs. Edwin T. Hall and Max Clarke, the Council referred to the committee the question of the advisability of amending the existing Conditions of Contract, and especially the clauses dealing with P.C. amounts and provisional sums. The committee appointed a sub-committee to deal with the matter. During the current session a very large number of additional difficulties arising out of the existing Conditions have been brought before the committee, and these have in most cases been referred to the sub-committee. The committee have recommended to the Council the desirability of obtaining a legal opinion on the relative duration of architects' and contractors' liability under the Statute of Limitations. This has only just been received, and is now being considered by the sub-committee. It is hoped that the complete report of the sub-committee may be presented by the end of the session. It having been brought to the knowledge of the committee that the London Master Builders' Association is endeavouring to draw up a form of agreement between contractors and sub-contractors, a special meeting of the committee was held, at which a deputation from the association was invited to be present. The chairman, secretary, and several members of council of that body accordingly attended. They explained the difficulties at present existing in regard to the subject, and the direction in which they were trying to overcome them. A general discussion followed, in which a useful interchange of views took place.

REPORT OF THE SCIENCE STANDING COMMITTEE.

Mr. Alan E. Munby was elected chairman of the committee, Mr. F. R. Farrow, vice-chairman, and Messrs. Wonnacott and Solomon honorary secretaries. In the last annual report of the Science Standing Committee reference was made to the draft of a uniform scheme for preparing the necessary particulars and calculations for skeleton-frame buildings to be submitted to district surveyors under the provisions of the various London Building Acts, 1894-1909. During the year past, this scheme has been been fully considered, and the committee have now finally approved the suggestions of the District Surveyors' Association governing the deposit of drawings and calculations with district surveyors in connection with skeleton-frame buildings. These suggested regulations have been published by the District Surveyors' Association in folio, giving in a cheap and handy form the requirements of the latest Acts, explanatory particulars of the formulae and symbols to be employed, working stresses, weight of materials, load tables for standard sections of beams and stanchions, and diagram sheets on which may be set out the calculations in detail for easy reference. The approval given by the Council at the close of last session to the efforts of the committee to promote research in building materials affecting the profession has led to correspondence with the Imperial Technical College and interviews with the Rector and professors. It was found hopeless to expect State aid to further the object of the committee; but facilities would be afforded by the Imperial Technical College, as the leading technical institution, if some scheme of study and research could be agreed upon. The draft of a scheme pre-

pared by the College has recently come before the committee, and is now under their consideration. The report and data of the series of tests of mortar, which extended over two years, has now been published under the auspices of the Science Standing Committee. The issue of the monograph, "Notes on the Properties and Ingredients of Commercial Paints," compiled by the Science Standing Committee, has been amply justified by the large sale of copies. A movement initiated by the English Forestry Association to promote the use of home-grown timber, and foster the industries connected with it, led to a conference on February 20 last between the representatives of that body and four delegates appointed by the R.I.B.A. Council. A reference from the Council to the committee has resulted, after inquiry and correspondence, in the Institute ceasing to be represented on the Incorporated Joint Committee on Water Regulations. Among minor matters dealt with by a firm of chartered accountants, which advice has been sought or which are still under investigation, are: Defects in roofing-tiles, particularly machine-made varieties; valve closets; preservation of decayed stonework; corrosion of pipes and tanks by moorland waters; South African marbles and building stones; and decay of lead dressings on roofs.

FINANCE.

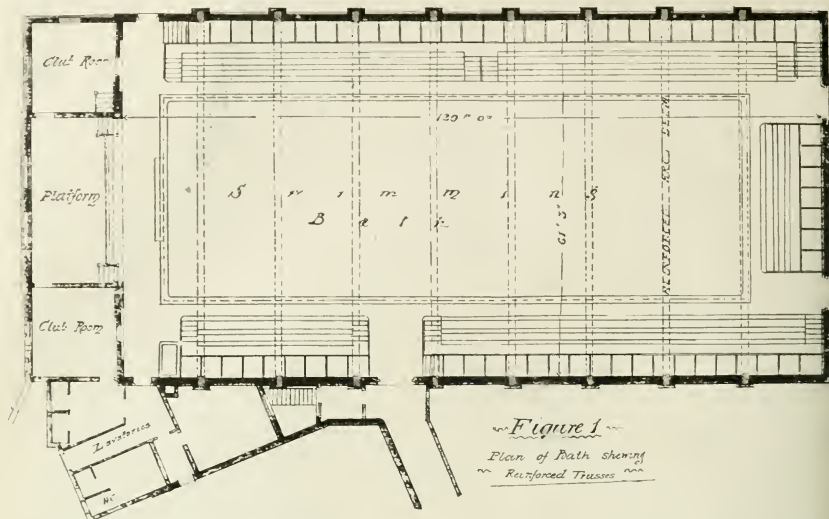
The income and expenditure accounts of ordinary funds for the financial year, as prepared by a firm of chartered accountants, shows a total expenditure of £13,975 14s. 9d. and a deficit for the year carried to balance-sheet of £2,161 7s. 7d. Rent, it appears, absorbed £1,740 5s., and salaries £2,725 3s. 7d. The receipts from subscriptions were £8,493 8s. The examination expenses were £31 9s. 10d., and the receipts from examinees' fees £1,459 8s. The production of the Journal and Kalendars cost £2,598 10s. 3d., and the receipts from sales and advertising were £1,680 17s. 2d. The contributions to allied societies represented an outlay of £149 3s. 6d., and special grants £44 15s., while under extraordinary expenditure the chief item was the Town-Planning Conference, £1,675 16s. 9d. The honorary auditors, Messrs. John Hudson and W. H. Burt, in their report, point out that this last-named item was the principal cause of the year's deficit, and add: "It is our opinion that, provided no exceptional expenditure is incurred, there should be a substantial excess of income over expenditure for the year 1912 and subsequent years. This excess should be applied steadily to the reduction of the loan from the bank which was negotiated in the year 1911 for the purpose of paying the expenses in connection with the alterations and additions to the premises and the Town-Planning Conference. In the account there are the following items of expenditure:—Mortar tests, £115 3s. 9d.; concrete report, £67 11s.; dinner deficit, £105 10s.; and a considerable sum for legal charges. We are of opinion that, as there is a large overdraft on the bank, such expenses in future should be restricted."

THE THEORY AND PRACTICE OF HEATING AND VENTILATION.*

This elaborate treatise, of some seven hundred pages, is a welcome attempt to explain in detail the application of scientific principles to the chief problems with which the heating engineer has to deal, and further to indicate the limits within which these principles are applicable in practice. Neither description nor criticism of practical details of construction is attempted. These, as Mr. Barker truly says, can only be learnt by actually handling the things themselves.

Most of us, we fancy, have found the heating and ventilating engineer a bit of an empiric. What we mean is that he does not seem to understand the discrepancies between theory and practice, which are more difficult to account for in his work than in most other

* *The Theory and Practice of Heating and Ventilation.* By A. H. BARKER, B.Sc., B.A. (London). London: The Caxton Press, 109, Strand, W.C.



kindred branches. He certainly may plead that few of his textbooks help him much. The results of most experimenters have been so divergent that it is often difficult not merely to reconcile them, but even to deduce from a comparison between them any approximate rules for the practical man's guidance. If he determines to think for himself, he will search in vain for real light on such subjects as the flow of fluids, the conduction of heat, the theory of fans, and even the principles of the ordinary low-pressure circulation of water and air. He will get in very great measure the help he wants in Mr. Barker's book, which is the result of years of labour and research. Such matter, for instance, as we get in Chapters XXII and XXIII, giving, as far as we know, for the first time the geometrical proofs of the principles of the theory of hot water pressure and the method of pressure diagrams, is most valuable. So also is the author's simplification of Rietschel's method of determining pipe sizes. English textbook compilers seem to know nothing about Rietschel's work, or to have been frightened by his minuteness of detail.

Evidently against his will, Mr. Barker has had to stick to the usual units—the pound, the foot, and the inch—which are not quite such an "absurd tangle" as he calls them, and which—"for good," not "ill"—we trust are likely to remain with us. That tons, hundredweights, chaldrons, etc., ought to be swept away, along with rods, poles, and perches, we heartily agree, and we second his appeal to heating engineers not to tolerate them in practice except where contact with other trades compels them.

REINFORCED CONCRETE BUILDINGS.

By WM. G. SHIPWRIGHT, Licentiate R.I.B.A., M.C.I., and Chartered Building Surveyor (by examination).

CROYDON PUBLIC BATHS.

(George F. Carter, M.I.C.E. Architect and Engineer.)

This building is a very satisfactory example of the introduction of reinforced construction to fulfil certain functions in combination with other forms of construction, and a lofty and lofty 120ft. long and 61ft. 3in. wide in the clear, has been erected by these means to

a simple design in which the constructional members form a prominent feature. The walls are 18in. brickwork, and a certain architectural effect has been secured in the elevation by facing the piers with Luton bricks, with piked stock panels between. The bath itself is constructed in solid

drawings it will be seen that the reinforced work is constructed entirely independently of the walls, and is self-supporting.

The width of the arch beams is 15in. throughout, and the reinforcement of the vertical portions of the construction, which are built into the walls, is shown in section

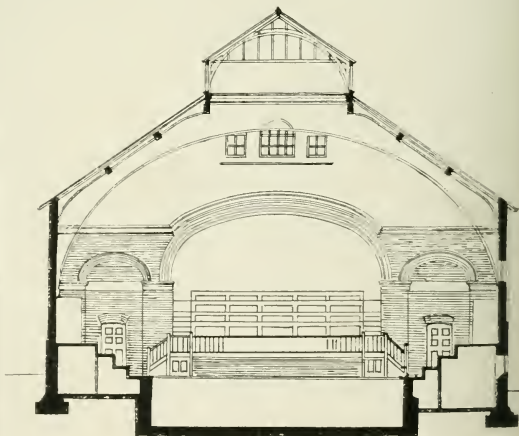


FIGURE 2

concrete, and the reinforced work is introduced in the eight arch beams which span the hall from wall to wall and the purlins supporting the roof across the 14ft. spans between the main beams. Fig. 1 (plan) and Fig. 2 (section) show the general arrangement of the bath and the disposition of the main beams and purlins, which are illustrated in detail in Figs. 3, 4, 5, 6, 7, 8, and 9. From an examination of these

A A (Fig. 5). The depth of this point is 2ft. and the four 14 thick Kahn trusses are placed in pairs, 18in. apart.

Additional reinforcement is introduced at a height of about 6ft. from the floor and 12ft. from the foundation level, consisting of five 1½in. Kahn bars, placed two on the outside and three on the inner side of the arch, 9in. from the soffit and extras respectively. This reinforcement is further augmented 5ft.

Left-Hand Side.

| B | | | C | | | D | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Added load. | Total load. | Deflection. | Added load. | Total load. | Deflection. | Added load. | Total load. | Deflection. |
| cwts. | cwts. | inch | cwts. | cwts. | inch | cwts. | cwts. | inch |
| 7.0 | cradle | zero | 6.0 | cradle | zero | 8.0 | cradle | zero |
| 6.0 | 13.0 | .00 | 8.0 | 14.0 | .00 | 14.0 | 22.0 | .00 |
| 7.0 | 20.0 | .00 | 6.0 | 20.0 | .00 | 10.0 | 32.0 | .00 |
| 7.0 | 27.0 | .00 | 7.0 | 27.0 | .00 | 13.0 | 45.0 | .00 |

No further load added to this side.

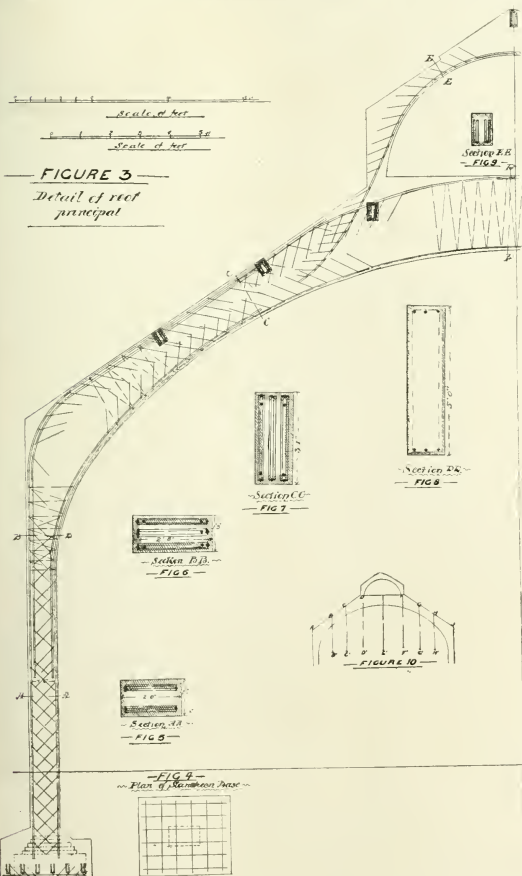
| | | | | | | | | |
|---|---|-----|---|---|------|---|---|---|
| — | — | .01 | — | — | .02 | — | — | — |
| — | — | .02 | — | — | .025 | — | — | — |
| — | — | .03 | — | — | .04 | — | — | — |

Deflections

| at | | | F | | | G | | | H | | | Total load on two Principals. | |
|------|------|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------------------------|-------|
| E | | | Added load. | Total load. | Deflection. | Added load. | Total load. | Deflection. | Added load. | Total load. | Deflection. | tons. | cwts. |
| inch | | | cwts. | cwts. | inch | cwts. | cwts. | inch | cwts. | cwts. | inch | | |
| zero | 8.0 | cradle | 7.5 | cradle | zero | 6.5 | cradle | zero | 2 | 3 | | | |
| .00 | 14.0 | 22.0 | 5.0 | 12.5 | .00 | 7.0 | 13.5 | .00 | 4 | 17 | | | |
| .02 | 10.0 | 32.0 | 7.5 | 20.0 | .005 | 6.5 | 30.0 | .00 | 7 | 4 | | | |
| .03 | 13.0 | 45.0 | 7.0 | 27.0 | .005 | 7.0 | 27.0 | — | 9 | 18 | | | |

Loading continued on this side.

| | | | | | | | | | | | | | |
|-----|------|------|------|------|-----|------|------|---|----|----|--|--|--|
| .01 | 23.0 | 68.0 | 13.0 | 40.0 | .01 | 13.0 | 40.0 | — | 12 | 7 | | | |
| .01 | 11.0 | 79.0 | 7.0 | 47.0 | .01 | 7.0 | 47.0 | — | 13 | 12 | | | |
| .01 | 11.0 | 90.0 | 7.0 | 54.0 | .02 | 7.0 | 54.0 | — | 11 | 17 | | | |



lower series is relinquished just beyond the point where the flat central curve of the ellipse is assumed, and the section, 3ft. 1in. deep at this point, takes the form shown in Fig. 7. The remainder of the inner bars in both upper and lower series are discontinued just above the position of this section; and the central section, where the arch attains its maximum depth of 5ft., is reinforced only by six bars, arranged in the manner shown in Fig. 8.

The upper arch, forming the skylight, is reinforced by two lin. "Kahn" bars in the lower side.

Diagonal 1/2in. wire is introduced in the centre and crucial points in the arch. The foundation, shown in Fig. 4, being 6ft. by 5ft. 3in. in area, with a cross-lattice of twelve 1/2in. "Kahn" bars at a height of about 3in. from the under surface of the concrete.

The purlins, which have a span of 13ft. 4in. from centre to centre of the main arches, are 12in. deep by 9in. wide, reinforced with two 1/2in. "Kahn" trussed bars. The purlin under the upper arch of the skylight being increased to 15in. in depth, but reinforced in the same manner. The ridge is 14in. deep by 8in. wide, with two 1/2in. "Kahn" bars reinforcement.

Some of the provisions, precautions, and tests employed in the construction are interesting and instructive. The total weight of the ribs is approximately 40 tons, the portion above the springing being 28 tons 3cwt. The three purlins, 4 tons 6cwt., and each section of the centre lantern 2 tons 6cwt. The whole of the work in each rib was carried out in one continuous operation from both sides simultaneously, thereby obviating the risk of any joints occurring in the concrete, and also evenly balancing the weight on the centering—an important consideration, dealing with extensive loads, as in the present instance.

The centering was struck after a period of fifty-six days, and a test applied to two of the ribs at the instance of the Local Government Board, sixty days after construction. It was found that a settlement 1/16th of an inch occurred in each rib under its own weight, after the centering was removed, the measurement being taken in the centre of the span. The test carried out by Mr. W. G. Kirkaldy (David Kirkaldy and Sons) consisted in suspending loaded platforms slung from the arches in the position shown by letters B, C, D, E, F, G, and H in Fig. 10, either end of the platform being supported by one of the ribs, so that the effect on both could be simultaneously noted.

The loads were first applied to show the result which would be produced when the whole of the roofing was completed. These loads and the result is shown upon the various points of the truss, the deflection being indicated in each case. After this was complete further loads, calculated to be equal to the maximum wind pressure, were added to points F, G, and H on the right-hand side, and the resulting deflection on the whole truss noted. The maximum, as will be seen from the table, being an upward deflection .04 (or 1/25th of an inch) at point C, and a downward deflection of .02 (or 1/50th of an inch) at point G.

higher by the introduction of two additional 1/4in. bars in both extrados and intrados; the section just above the springing of the arch being shown in Fig. 6 (B), embodying

eleven 1/4in. trussed bars, bound diagonally with 1/4in. diameter wire. The depth of the section at this point being 2ft. 8in.

The central bar of the inner set in the

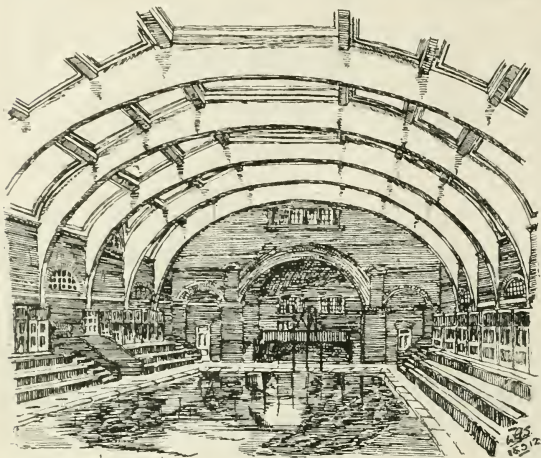


FIG. 11.

The test, which was executed in the presence of the Borough Engineer, Mr. George F. Carter, and Mr. A. A. G. Malet, of the Local Government Board, is to be specially commended for its practical character. The popular process of overstraining a structure by subjecting it to ridiculously heavy tests, cannot be too greatly deprecated. This test showed that the ordinary conditions applying to the structure would only, at most, produce the negligible movement of 1 10th millimetre or 1 25th of an inch. Having regard to the fact that the work was only sixty days old at the time of the test, it may reasonably be assumed that similar conditions would not cause even this negligible movement after the work matures, and the test clearly proved beyond question that the construction was so sound as to withstand almost any conceivable stress or shock. The measurements were recorded by a cachetometre. The changing stresses at point E are interesting, as also is the comparatively extensive upward movement on the left-hand side of the truss, having regard to the fact that this portion alone showed absolute rigidity until the wind-pressure loading was introduced.

A maple flooring is placed on the bath in winter months, when the building is used as a hall, when it is estimated to seat 1,500 persons.

Fig. 11 shows the general effect of the interior; the side galleries, upon which dressing-boxes are placed when the bath is in use, being constructed in steel framing and expanded metal reinforced-concrete slabs.

The concrete was composed of 2½ coarse (½ in.) shingle aggregate, 1½ parts of sand, and 1 part of "Ferro Concrete" brand Portland cement, and the reinforced work designed by the Trussed Concrete Company upon the "Kahn" system, Mr. W. Wallis being the builder.

A.A. SMOKING CONCERT AND EXHIBITION OF DRAWINGS AND PHOTOGRAPHS.

A fresh and very agreeable departure from precedent was taken by the President and Council of the Architectural Association on Friday evening. In lieu of the annual dinner, which has not of late years been so numerously attended as to avoid a loss, a members' smoking concert and an exhibition of half-inch scale drawings and photographs of recently-executed work was held in the lecture gallery at 18, Tuford-street, S.W.

The exhibition was opened by the President, Mr. Gerald C. Horsley, F.R.I.B.A., who also took the chair at the concert. There was a numerous attendance of members, and the evening was very agreeably spent by all.

The concert included a march, waltzes, and selections by the Cecilian Quadrille Band; recitations by Mr. C. Wontner Smith, who was deservedly encored; songs by Mr. C. G. Bontcher, Mr. Harold Brittain, Mr. Charles F. Butt, Mr. T. Lawrence Dale, Mr. Alfred Score, and Mr. George Vey; adieu by Messrs. C. Lionel Shingle and C. E. Butt; and an amusing sketch by Mr. Guy Church.

The exhibition of architectural drawings and photographs of recent buildings lent by well-known architects not only covered the entire wall surface and screens of the lecture-hall, but overflowed into the octagonal gallery. An interesting feature of the display was the hanging of photographs of the executed buildings side by side with the working drawings, so that by comparison it was possible to judge the ultimate effect in perspective of features delineated in elevation. A large proportion of the works illustrated have appeared in our own pages. The predominance of drawings of large country houses was marked.

With so large an exhibition, and the urgent demands upon our space at this season of the year, it is manifestly impracticable to allude to all the exhibits; but a few of the more noteworthy may be referred to. The President of the Association lent illustrations of Coverwood House and St. Paul's School for Girls. The work of Sir Aston Webb, R.A., a past president, was represented by the tower of the Victoria and Albert Museum, the College of Science, and the new Admiralty archway; Messrs. Sir Ernest George and Vestes by additions to Welbeck Abbey and other mansions; Messrs. Sir Charles Nicholson and Corlette by details of churches; Mr. H. T. Hare by Bangor University College; Mr. G. Gilbert Scott by the Lady-chapel at Liverpool and the Roman Catholic churches at Ramesey, I.M., and of St. Joseph, Sheringham; Mr. J. J. Burnet by the British Museum extensions; Mr. W. A. Pitt by new King's College Hospital, Denmark Hill; Messrs. Colcutt and Hamm by Lyck House, Trotteridge, and Daventry, Bucks; Mr. Ernest Newton, A.R.A., by Ardenham Place and other mansions; Mr. E. Guy Dawber by Burdocks, Fairfield, and Exford Park; Professor Beresford Pitt by offices in Euston-

square; Messrs. Ashley and Winton Newman by a house at Welwyn; Mr. E. L. Lutyens by a west wing to Temple Dinsley, Hertis; Messrs. Buckland and Farmer by Great Roke, Wiltshire; Mr. Walter Caw by Ewelme Down, Moynes Park, and Burberry's premises in the Haymarket (the latter illustrated in our pages to-day); and Messrs. Forsyth and Maule by Becklawn, Puttenham. Messrs. Warwick and Hall and Mr. Robert Atkinson both sent in competitive designs for the Berkshire County Council offices at Reading; Mr. Walter J. Tapper showed the unfinished brick church of St. Erkenwald, Southend-on-Sea, and halls at Birton and Kenfield; Messrs. Dunbar Smith and Brewer the Alhambra club-house; Mr. Charles Spooner a chapel at Letchworth; Mr. Arthur T. Bolton, Huntwood Edge and suburban railway stations for the London and North-Western Co.; and drawings of houses were also shown by Messrs. Field and Sammons, Mr. Geoffrey Lucas, Mr. C. Wontner Smith, and Mr. C. F. A. Voysey. Other exhibitors whose work we noted were Professor Reginald Blomfield, A.R.A., Mr. W. D. Caroe, Mr. Theodore Fyfe, Mr. H. Fletcher, Mr. W. Curtis Green, Mr. S. K. Greenslade, Mr. Ralph Knott, Mr. Mervyn Macartney, Mr. Halsey Ricardo, and Mr. J. Solomon. A very attractive exhibition of another class was a frame containing a series of eighty admirably clear large-scale photographs of chateaux and churches taken by Mr. A. W. Hennings during the A.A. Excursion to the Loire in August last. The exhibition remains open to-day and to-morrow (Saturday).

FAULTS IN THE THEORY OF FLEXURE.*

By HENRY S. PRICHARD, M.A.M.S.C.E.

(Concluded from page 629.)

The ordinary theory of flexure was gradually developed by noted scientists, beginning with Galileo, and was finally put on a mathematical basis in 1824. While it is faulty and incomplete, it is, considering the intricacy of the problems with which it deals, a remarkable approximation, and when used in the light of reason, an excellent guide within wide limits.

Within the elastic limits, its faults, as applied to well-proportioned and well-supported beams, are practically important only for very short ones; which, unfortunately, have less theoretical resistance within the elastic limit than indicated by the ordinary theory. The theory assumes that loads and reactions will be applied over the full depth of the beam, and that the profile of the beam and lateral supports are such that it will not buckle or develop weakness locally and will not buckle laterally; but the theory does not show how to insure these conditions, nor does it indicate the modification in the strength of the beam when they are not realised.

In trying to reconcile the theory with facts, the additional difficulties arise: that material has some imperfections in elasticity under stresses much less than what is ordinarily understood as the elastic limit; that wrought iron and soft and medium steel can have their elasticity perfected and its limit elevated; and that overstraining introduces internal stresses in beams by which a greater proportion of the strength of the material is utilised under subsequent loads in the same direction (provided there has been no permanent buckling or serious injury).

In addition to the uncertainties incident to the faults and limitations to the ordinary theory of flexure, there are uncertainties as to the effects of various methods and conditions of manufacture, on beams of various size and profile, which lie entirely outside of the scope of the questions dealt with by the ordinary theory, and can only be settled by scientific experiments.

The practical man, professedly sceptical in regard to theories, finally adopted the theory of flexure as a criterion for the strength of rolled \mathbf{x} beams (influenced, no doubt, by

* Read before the American Society of Engineers, May 1.

the statement, in a pioneer manufacturer's pocket-book, of the favourable results of actual tests, made at Trenton, of iron **I** beams by a United States Government engineer), and placed such confidence in its results that, when steel was substituted for wrought iron, and new shapes of **I** beams were devised, their strength was assumed from theory, without tests; and when, within the last few years, new methods of rolling made it possible to roll deeper beams, wider flanges, and thinner webs, the ordinary theory of flexure was still relied on as a sufficient criterion of the strength of the new shapes adopted.

The changes which have been made in the profiles of **I** beams are quite marked, as shown in Figs. 8A, 8B, and 8C.

The more the centres of gravity of the flanges are moved toward the top and bottom, by making the flanges wider and thinner, the greater the computed resistance to bending in proportion to the area of the cross-section; yet there must be some limit beyond which the metal is actually rendered less effective by such spreading and thinning, and this limit can only be determined by the behaviour of beams in service and by scientific experiments.

Since the introduction of new shapes for steel beams, 31 beams have been tested by Edgar Marburg, M. Am. Soc. C. E., and a large number by certain manufacturers for their information and guidance.

In Professor Marburg's tests, some indicated very low elastic limits, especially for the deeper beams, the lowest being 10,600 lb. per sq. in. for a 30 in. girder beam. These low elastic limits have caused apprehension in the minds of Professor Marburg and other engineers. That the real, original elastic limit, however, as distinguished from the yield point, is likely to be very low has long been known. About 74 years ago Mr. Eaton Hodgkinson found that any stress, however small, was sufficient to produce a set in cast-iron beams; some 30 years ago the U. S. Board in making bending tests on wrought-iron **I** beams, found the elastic limit to be as low as 13,000 lb. per sq. in.; and numerous tests at

TABLE 4.
Loads which produced permanent sets of 0.1 and 0.4 in. in bending tests of 15 in. 42 lb. and 12 in. 31 lb. **I**-beams of standard shapes, and 15 in. 38 lb. and 12 in. 28.5 lb. **I** beams of new shapes.

| Depth of beam in inches. | Span in feet. | Loading as explained above. | Working load: W, in pounds. | Permanent set 0.1 in. | | Permanent set 0.4 in. | |
|--------------------------|---------------|-----------------------------|-----------------------------|-----------------------|-------------|-----------------------|-------------|
| | | | | Standard shapes. | New shapes. | Standard shapes. | New shapes. |
| 15 | 21 | (1) A | 14,980 | 3.73 W | 3.20 W | 4.07 W | 3.73 W |
| 15 | 21 | (1) B | 14,980 | 4.03 " | 3.35 " | 4.27 " | 4.02 " |
| 15 | 21 | (1) C | 14,980 | 3.64 " | 3.15 " | 4.19 " | 3.83 " |
| 15 | 21 | (1) D | 14,960 | 4.03 " | 3.64 " | 4.15 " | 4.07 " |
| 15 | 21 | (2) A | 22,470 | 3.43 " | 3.16 " | 3.83 " | 3.36 " |
| 15 | 21 | (2) B | 22,470 | 2.84 " | 2.64 " | 3.68 " | 3.29 " |
| 15 | 21 | (2) C | 22,470 | 3.33 " | 2.57 " | 3.89 " | 3.34 " |
| 15 | 21 | (2) D | 22,470 | 2.88 " | 2.68 " | 3.47 " | 3.29 " |
| 12 | 16 | (1) A | 12,000 | 3.87 " | 2.92 " | 4.12 " | 3.85 " |
| 12 | 16 | (1) B | 12,000 | 4.04 " | 3.46 " | 4.21 " | 4.30 " |
| 12 | 16 | (1) C | 12,000 | 3.92 " | 3.23 " | 4.33 " | 4.21 " |
| 12 | 16 | (1) D | 12,000 | 4.22 " | 3.86 " | 4.50 " | 4.50 " |
| 12 | 16 | (2) A | 18,000 | 3.32 " | 2.86 " | 3.78 " | 3.24 " |
| 12 | 16 | (2) B | 18,000 | 3.35 " | 2.57 " | 3.90 " | 3.35 " |
| 12 | 16 | (2) C | 18,000 | 3.58 " | 2.73 " | 3.90 " | 3.51 " |
| 12 | 16 | (2) D | 18,000 | 3.59 " | 2.91 " | 3.89 " | 3.53 " |

* Single tests. In all cases the averages of three tests are given.

him, explained low original elastic limits as the result of initial internal stresses, and stated:

"It appears to me that the defects which he (Hodgkinson) has shown to occur even with very slight strains exist only when the strain is applied for the first time, or, in other words, that if a beam has already been subjected to a considerable strain, it may again be subjected to any smaller strain in the same direction without taking a permanent set."

This remarkable prediction has been supported by subsequent experiments, the most notable of which are those by Professor Johann Bauschinger, described in his "Communications, 1880," and referred to by Professor Marburg, who stated as follows:

"Accordingly, after an initial stress, of a given magnitude within the elastic limit, has been once developed, the material is afterward perfectly elastic up to the limit of that stress."

It is much to be regretted that some of

fully observed and recorded, and others which would develop the greatest load under which, if allowed to remain indefinitely, the deflection would not be excessive, and would finally cease to increase.

In Professor Marburg's tests the beams simply rested on supports, and concentrated loads were applied on the top flanges, which had no lateral support even at the ends, a severe combination of conditions, rarely encountered, which cannot be regarded as good practice. The most extensive of the manufacturer's tests previously referred to were made, under various conditions of loading, on 12 in. and 15 in. steel **I** beams.

The conditions of loading and supports were as follows:—A, with end connection angles and loads applied at top; B, with end connection angles and loads applied by connection angles through the web; A, with end connection angles and loads applied at top; D, supported on seat angles with loads applied by connection angles through the web.

The beams were tested for all four of these conditions, with loads applied at the centre of the span, and also with loads applied at the third points of the span; that is 1) with one load, and 2) with two loads. The tests embraced beams of standard shapes and of new shapes; the averages of the preliminary specimen tests are given in Table 3.

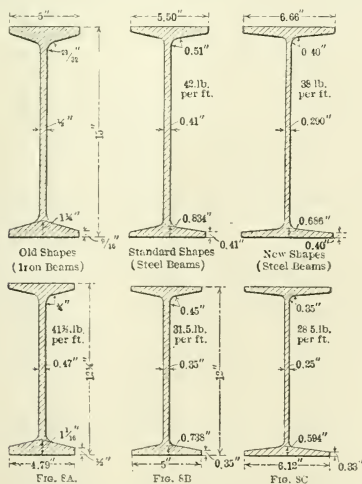
TABLE 3.

| | Flange Values | | Web Values | |
|------------------|---|-------------------------------|---|-------------------------------|
| | Ultimate tensile strength, per square inch. | Yield point, per square inch. | Ultimate tensile strength, per square inch. | Yield point, per square inch. |
| Standard shapes— | | | | |
| 12 in.—42 lb. | 62,166 | 38,211 | 60,804 | 39,141 |
| 12 in.—31.5 lb. | 62,834 | 39,222 | 61,076 | 38,266 |
| New shapes— | | | | |
| 15 in.—38 lb. | 61,811 | 40,036 | 64,768 | 43,395 |
| 12 in.—28.5 lb. | 60,588 | 41,036 | 64,184 | 49,647 |

The bending tests were made at Ambridge, Pa., and the construction of the machine necessitated the placing of the beams in a horizontal position, but they were guided and supported against lateral deflection at intervals of one-third of their length.

Table 4, giving the loads which caused permanent sets of 0.1 and 0.4 in. in 15 in. 42 lb. per foot, and 12 in. 31.5 lb. per foot, **I** beams of standard shapes, as in Fig. 8B, and 15 in. beams of new shapes, similar to those in Fig. 8C, was compiled from the manufacturer's diagrams of permanent sets. The loads are stated in terms of the working load, W, computed for the nominal shapes of the beams, as given in manufacturers' pocket-books, and shown in Figs. 8B and 8C, on the basis of 16,000 lb. per square inch in the extreme fibre.

The actual dimensions of the beams of the new shapes that were tested were somewhat different from the nominal dimensions, as



the Watertown Arsenal show low elastic limits for steel of excellent quality (for instance, a test of an eye-bar for the late George S. Morison, Past-President Am. Soc. C. E., showed a permanent set at 5,000 lb. per sq. in.).

Professor James Thompson, in 1848, before there were any retests of material to guide

the **I** beams, tested by Professor Marburg and others, were not experimented with, after they had some appreciable but not injurious permanent set, in order to ascertain the effect of overstraining on elasticity. It would be well to have some experiments in which the load would be removed, and, after a rest, gradually re-applied, and the elasticity care-

their webs were thicker and their flanges thinner, and the axial moments of inertia, and, therefore, their theoretical capacities, were about 5 per cent. less than those of the standard beams of which they are nominally the theoretical equivalents. It appears, from an examination of Table 4, that the beams sustained for short periods loads more than three times the working load without acquiring permanent sets large enough to be serious when viewed merely as changes in shape. Slight permanent sets, even under the working loads, would not in themselves be objectionable, and would not be alarming if it could be shown that permanent or indefinitely repeated loads of, say, twice the working loads could not produce failure or serious deformation.

On an average, it took 18.6 per cent. more load to produce a permanent set of 0.1 in. in the beams of standard shape than in the nominally equivalent beams of new shapes, and 8 per cent. more to produce a permanent set of 0.4 in. Whether or not this indicates a corresponding superiority in permanent capacity, what the permanent capacities are, and what permanent sets the beams would take under their maximum permanent loads, are questions to be decided by scientific experiments.

SHROPSHIRE CHURCHES.

The Rev. D. H. Cranage, M.A., F.S.A., of King's College, Cambridge, has finished the thoroughly complete topographical work on the architecture of the churches of Shropshire he commenced some years ago, with permanent reproductions of photographs specially taken by Mr. Martin J. Harding, accompanied by plans drawn for the work by Mr. W. Arthur Webb, A.R.I.B.A. Messrs. Hobson and Co., of Wellington, Salop, are the publishers.

The second volume, now published, comprises the Hundreds of Conover, Ford, and Bamber, Bulford, and Southwold, Pimhill, Oswestry, and the Liberties of Shrewsbury, thus covering the richest part of the county, and including such examples as the historic church of Battlefield, so finely illustrating the best traditions of the Perpendicular period, but also containing very fine Decorative windows. Holy Cross, to which the late J. L. Pearson added a choir and presbytery during the 'eighties, is among the most interesting buildings in Shrewsbury, with a nave and apse dignified and built of six bays with a broad pier in the centre, said to have marked the divisional line between the monastic and parochial part of the building, also where a screen, probably of wood, existed. This part of the church underwent restoration in 1862 under the direction of Mr. J. Pountney Smith, and Mr. Harold Breakspear, F.S.A., has within the last four years repaired the tower and exterior. The west entrance is Norman much modernised, and the battlement of the tower surmounting the façade, with its enormous Perpendicular window, was added in brickwork about 1690. The Lady-chapel is almost the only remaining portion of Old St. Chad's Church still standing intact above ground, and for long it was known as the Bishop's Chancel. New St. Chad's is a Classic auditorium church, from the designs of George Stewart, the architect of Allingham Hall, erected at a cost of £20,000 in 1792. The great church of St. Mary's, at Shrewsbury—for many centuries a collegiate church and also a royal free chapel—in origin goes back to Saxon times. The illustrations are excellent, with copious descriptions and diagrams showing details of this noble building.

An appendix vastly increases the usefulness of the volume. It is added to this closing part is a general survey dealing with geographical matters and also allocating the architectural periods represented by the 326 churches described by the author, eight of this number being new buildings. Plan and construction are similarly dealt with; likewise furniture and fittings. Thus no endeavour has been spared to make the work interesting and reliable.

LIGHT AND COMPETITION.

At the seventeenth half-yearly meeting of the North of England Gas Managers' Association, held last Saturday at the lecture theatre of the Institute of Mining and Mechanical Engineers, Westgate road, Newcastle, Mr. Jacques Abady, London, delivered a lecture on "Light and Competition," in the course of which he asked what was competition, and how should it be met? They could lay down two propositions: (1) What were the strong and weak points of their own and the electrical engineers' position, and did they both state their cases fairly? (2) What were the possibilities of improving their own and the electrical engineers' position? The first proposition was a simple one, and should be a mere statement of fact. If they analysed the two sources of illumination which were in competition, they were forced to consider them from the points of view, firstly, of price, and, secondly, quality and general suitability for giving light to human beings. Having dealt with these two points at considerable length, and with much detail, Mr. Abady addressed himself to the prospects of improvement, and he thought the electrical engineer stood better than the gas engineer. With gas as it was made now, and burners as they were conceived, he did not think there was very much possibility of greatly improving the duty that one obtained from a cubic foot of gas. Electricity, on the other hand, was hot-foot in pursuit of an idea—that was, using vapour as a conductor of current—which, he thought, would, in perhaps a few years, even, be productive of great results. What could, and should, a gas engineer do to bring about improvement in his own products? He did not believe anything like sufficient interest was taken in the question of reflection from polished surfaces or through prisms. The possibilities of altering the angles of distribution, and of increasing the advantage in the tone and colour of the light, were, it seemed to him, all very great.

Another and more immediate direction in which they should cast their thoughts was that of producing low-grade gas, not by increasing its percentage of inert constituents, but by setting themselves to attenuate the hydrocarbons, so that, while increasing in volume, they decreased in intrinsic calorific power, and caused their finished product to get nearer the point where they could obtain the heat they required to render their mantles incandescent by the admixture of just the right amount of air.

In conclusion, he thought they could honestly say their industry had made great strides from the point of view which he last addressed them in 1904; and he believed if they went on looking facts fairly in the face, the future of gas as a lighting medium would be just as great as had been the past. He made detailed comparisons as between gas and electricity, and claimed that the gas-man had little to fear from the electrician in the matter of cost. Mr. Abady mentioned, in reference to the future of gas-lighting and electric lights, that last Wednesday he attended an experiment of a new form of gas-lighting. While he was unable to disclose what that form was, he thought he could say with deliberation that the introduction of that new form of light would do as much for gas as the filament lamp had done for electricity. It would, he wonders, he believed, for higher pressure gas.

The Board of Trade has confirmed an order made by the Light Railway Commissioners for an extension of the light railways at Southend-on-Sea.

The Canadian Northern Railway Company has let the contract for the construction of the first 50 miles of railway from Prince Albert toward Hudson Bay to William Oseman, Kinastino, Sask.

The mosaic work in the Shrine of the Sacred Heart at Westminster Cathedral is now completed. Under the vaulting, which is enriched with gold and red vitreous mosaic, is a representation of the Sacred Face by the late Mr. W. C. Symonds, and the walls have been veneered with plates of green and white marble.

OBITUARY.

Mr. James Barbour, architect and civil engineer, Dumfries, died on Sunday morning at Harrogate, where he had been on holiday. Mr. Barbour, who was seventy-eight years of age, was a leading architect in Dumfries district, and designed many public buildings and private residences. He also engineered a number of waterworks, including the scheme for the supply of a great part of Lower Amandale, which is now being carried out. He was a Fellow of the Scottish Society of Antiquaries and a Justice of the Peace for the county of Dumfries.

We regret to hear of the death at an advanced age of Mr. Lewis Angell, F.R.I.B.A., M.Inst.C.E., for many years borough engineer and surveyor of West Ham, and the first president of the Institution of Municipal and County Engineers. Mr. Angell was elected a Fellow of the Royal Institute of British Architects in 1864, and retired from practice ten years ago, and had since resided at Calside, Carlisle road, Eastbourne.

Engineering Notes.

ROYAL ALBERT DOCKS.—The King has appointed Wednesday, July 17, as the day for the ceremony of cutting the first sod of the extension of the Royal Albert Docks. It is anticipated that the whole work will be completed in four years. The first contract, to cover constructional operations, will represent nearly £1,250,000, and the tenders are to be sent in by selected firms by the end of May. The contracts for equipment will be let subsequently. The excavation of the dock will be proceeded with immediately, and it is anticipated that the entire work will be completed in four years. The electrically driven pumping plant ordered twelve months ago for raising the level of the water in the Royal Victoria and Albert Docks to a 38ft. level is now in course of installation, and will be ready for use this summer. There are three 70in. suction pumps, which will deliver through six 50in. pipes, and have collectively a capacity of 280,000 gallons.

The executive committee of the Florence Nightingale Memorial Fund have unanimously entrusted Mr. Arthur G. Walker, of Cedar Studios, Chelsea, with the commission as sculptor to execute the bronze statue of Miss Florence Nightingale.

At Tuesday's meeting of the London County Council it was reported that Mr. W. S. Hill, a materials inspector on the unestablished staff of the architect's department, met with a fatal accident on April 30, at the new County Hall site. It appears that Mr. Hill was stepping from a scaffold on to a wire-rope when he slipped and fell through a window opening. Mr. Hill, who was fifty-three years of age, had been in the service of the late School Board for London and the Council for twenty years.

At Weston Mill, St. Budeaux, near Devonport, on Saturday, the Bishop of Exeter consecrated the foundations of St. Philip, the tenth church in connection with the Three Towns Church Extension Scheme. There are only two more to be built. The Bishop of Exeter consecrated at Attawater, Plymouth, on the following day, the Church of St. Mary the Virgin and St. Mary Magdalene, one of the buildings erected under the same extension scheme. The last-named church is situated in Alvington-street, (Attawater); the architect is Mr. Charles A. Nicholson. Both the buildings are Messrs. Cowling and Son, of Bristol.

A special meeting of the Rhins District Committee of the county council of Wigtonshire was held in Stranraer on Saturday to further consider as to repairs of existing road damaged by wind scouring at Lamlash, on the main road between Stranraer and Drummore. There were two proposals before the committee—to construct a new road inland through the Logan estate, at the estimated cost of £1,250 19s. 6d., exclusive of compensation to landlords and tenant; and to repair the existing roadway by erecting a substantial concrete, at the estimated cost of £1,558 19s. By the casting vote of the chairman it was decided that a new sea wall be erected, in terms of the surveyor's estimate.

CURRENTE CALAMO.

If this year's Academy Exhibition really represents British art, it is in a bad way! A duller show we seldom remember, varied as it is by æsthetic extravagances which appeal to the popular love of sensationalism, apparently despairing of attracting notice otherwise. The really good pictures are by a dozen artists or so, such as Mr. Sargent, Mr. Clausen, Mr. David Murray, Sir Ernest Waterlow, Mr. H. W. B. Davis, Sir Alfred East, Mr. Waterhouse, Sir Hubert van Herkomer, Sir Lawrence Alma-Tadema, Mr. Sims, Mr. Hughes Stanton, Mr. Arnesby Brown, and one or two others.

Mr. Arnesby Brown's "A Norfolk Landscape" is one of the very best works on view. We are glad to see that the Macdonald Trust, of Aberdeen, have promptly secured it for £750 for the Aberdeen Art Gallery. Mr. Sargent's "Cypresses" is, perhaps, hardly up to his average. Mr. David Murray's contributions are all welcome and of high quality; his "Music by the Lake," "A Whisper of Winter," "The Pilgrim's Path," and "The Heart of the Tressachs" will delight everyone capable of their appreciation. Sir Ernest Waterlow's "Sussex" is broadly simple and dignified. Sir Alfred East's "A Tranquil River," "Autumn in England," "A Castle in Spain," and "Under the World" are characteristic examples of his capability for management of colour. Mr. Waterhouse's "Penelope and the Suitors" more than atones for his two portraits, which, after all, have a pleasant unconventionality absent from nine out of ten of the "royal" and official productions which this year have found their way to Burlington House in such shoals.

Mr. William Llewellyn's election as an Associate of the Royal Academy on Wednesday, we suppose, a fitting tribute to his esteem in high circles. We should rather have expected the success of Mr. Harard Thomas, who, it is said, had the second highest vote. Anyhow, for the present the question raised by Mr. Strang's candidature remains unsolved. Already an Associate-Engraver, and not allowed to exhibit pictures, as such, he has won admission, as an outsider, for his oil-paintings on their merits. He allowed his name to be added to the list of candidates as an Associate-Painter, presumably to test his right to do so without resigning as an Associate-Engraver, as James Ward was told he must do when he inquired if he could be promoted to the status of an ordinary R.A., if his work satisfied his colleagues. Whether the Council still regard that as a governing decision in all cases of the kind we do not know.

The remarks of the Prime Minister at the Academy banquet with reference to the exodus of works of art from this country have been emphasised by the announcement that Lord Feversham has sold his Rembrandt "Portrait of a Merchant" to Mr. H. C. Frick, of New York, for £50,000. The President of the Academy hinted that it might be a good thing if the State had a right of pre-emption; but this would not in itself be a remedy. As far as we remember, owners of great pictures and other works of art have, as a rule, been quite willing to sell to home buyers first—at their price! The truth is,

the taxpayer has grown rather suspicious of the tooting for home buyers, as he suspects, mainly with the object of raising the figure, and he is resigning himself to see from time to time objects of art which ought to belong to the nation sold, either on grounds of necessity or from motives of cupidity, to the highest bidder.

The eccentricities of some of the local authorities' methods of indicating the names of streets cause many strangers difficulty in finding their way about London. Recognising this, the Royal Institute of British Architects is endeavouring to secure a uniform and serviceable method of displaying the names of all the streets, and is holding a conference on the 22nd inst., when specimens of especially legible name-plates will be submitted, the idea being to hit upon a style of tablet which all might identify at a glance. "Bill-posting Prohibited-street" or "Keep to the Right-lane" would thus no longer be "blind-alley jobs" for belated pedestrians. The idea is good. It might perhaps help, as before suggested in these columns, if the name of the street was inscribed on the pavement at its junction with another, an arrow indicating the route. That this is judged a prominent and certain-to-be-seen indication is evident from the free advertisements of some of the pavement-makers which adorn the footpaths.

There have been many modern Jewish artists, but little, if any, corporate manifestation of Jewish art. The Palestine Exhibition and Bazaar, which is to be held at the Portman Rooms on May 13 and 14, will embody some. The exhibition is in aid of the Bezaleel and the Evelina de Rothschild Schools in Jerusalem. Bezaleel was one of the craftsmen of the Tabernacle, and the Bezaleel School was started in 1906 by Professor Boris Schatz, a sculptor whose work is well known on the Continent, to revive Jewish craftsmanship, inspired by Jewish motives, and instinct with the atmosphere of the Jewish land. Carpets, filigree-work—mostly produced by Jews from the Yemen, in whom this craft is a tradition—lace, copper-work, wood-carving, and inlaying are the chief products of the school. Professor Schatz, it is stated, has tried to avoid European models and give the work a definitely Palestinian character. There have been similar exhibitions in Germany, Austria, and Holland.

With reference to Sir Philip Burne-Jones's letter in the *Times* of Monday complaining of the exhibition at the National Gallery of a picture by a living Italian artist, Sir Charles Holroyd points out that there are several precedents, including two by Josef Israels, one by Fantin-Latour, and "The Horse Fair," by Rosa Bonheur. These were all exhibited in the lifetime of the artists. Quite true; and some people wondered why, remembering the unwritten law which limits entry to the National Gallery of the works of deceased artists of front rank. More people, perhaps, are wondering now what the other special claims are to the inclusion of the late Lady Colin Campbell's portrait in Room 24, amongst the Greuzes and Corots of the Salting Bequest!

The pourparlers in connection with the dispute in the building trade are proceeding. The London master builders have offered an

increase of a halfpenny per hour on condition that the men withdraw their demand for an increase of 1½d., a reduction of the summer working hours from fifty to forty seven, and double pay for overtime. This offer has not been accepted, and the notices to cease work early in June remain in force; but further proposals are contemplated which will afford a basis for negotiation and, we believe, amicable settlement.

Sir William Collins's caution to "benefactors" on Wednesday at the University of London's Presentation Day gathering was timely. The Senate, he pointed out, was often much handicapped by the benefactors earmarking their benefactions. In order to correct misapprehension he would like to remind those present that the Senate of the University still had full power to hold property. Much had recently been said about the housing of the University. It was a burning question, and it was surely not too much to ask that the University should not be crippled in carrying out its high objects by bad accommodation. Whether they remained in the Royal borough of Kensington or moved to the drab gentility of Bloomsbury, to the shady gardens of Gray's Inn, to the banks of the Thames, or to the broad acres of the Foundling Hospital, they were determined to remain faithful to their high ideals, to hold out for all classes of citizens the open degrees. We are glad to know that. There are some "gifts of the Greeks" which somehow load the recipients with obligations which are scarcely distinguishable from fetters.

We believe that the outcome of the many months' negotiations for the erection of a new Custom House for Liverpool on the present vacant portion of the old George's Dock site at the Pierhead, is an offer by the Treasury to provide £100,000 for the building, on condition that the Corporation give the necessary site, estimated to be valued at £50,000. Whether that sum will satisfy the requirements of Liverpool is doubtful. The scheme recently submitted to the Chancellor of the Exchequer by Messrs. Cubitt, of London, who have an option of the site, and which embraced a handsome composite design by Messrs. C. Clegg and Son, architects, of Manchester, was estimated to cost half a million sterling. It has taken some years now to make the Government move, and Mr. Lloyd George's present offer indicates that he is no better judge of the size and character of the buildings required than of the ultimate cost of the working of his Insurance Act!

The acting conservator of the Mersey has been advised by the Otterspool Coal Docks, Ltd., of their intention to construct a temporary timbered jetty at Otterspool for the purpose of loading stone excavated from the site of the dock into hoppers and barges. The company's notice states that the jetty will project 100 yards from the river-protecting slope, the level of the top of the jetty being 2ft. above the old dock sill, and it is proposed to commence the work as soon as permission has been granted.

Mr. Alan Henderson Gardiner, D.Litt., of Queen's College, Oxford, has been appointed Reader in Egyptology in the University of Manchester. Dr. Gardiner is Laycock Student in Egyptology at Worcester College, and was awarded the degree of D.Litt. for his researches in Ancient Egyptian philology. The new extension of the museum in which the valuable Egyptian collections will be placed is being rapidly proceeded with, and Miss W. M. Crompton has been appointed assistant in charge of the Egyptological and anthropological specimens.

COMPETITIONS.

CARD-BACK DESIGNS.—The Worshipful Company of Makers of Playing Cards offers prizes of £15 10s. and £10 10s., on certain conditions, for designs for backs of playing cards. Full particulars of the conditions applicable to the competition can be obtained from W. Hayes, the clerk of the company, Guildhall, E.C.

CHESHIRE COUNTY COUNCIL SCHOOL, PORT SUNLIGHT.—The competition committee of the Liverpool Architectural Society are in correspondence with the Cheshire County Council over the proposed competition for a school at Port Sunlight. Members are requested to refrain from applying for the Conditions at present, as the society are pressing for the usual five per cent. commission and premium to competitors.

DOVERCOURT.—Mr. Paul Waterhouse, M.A., F.R.I.B.A., the assessor appointed by the Harwich Education Committee to report on the plans submitted in competition for the new school at Dovercourt, has awarded the premiums as follows:—First prize of 20 guineas to Messrs. Brown and Burgess, Princes-street, Ipswich; second of 15 guineas to Mr. E. T. Johns, Lower Brook street, Ipswich; and third of 10 guineas to Messrs. Goody and Crossall, St. Peter's Chambers, High-street, Colchester.

KING EDWARD VII. MEMORIAL AT OTTAWA.—With reference to the advertisement of this department inviting competitive designs for a monument to be erected at Ottawa to his late Majesty King Edward VII., attention is drawn to the fact that the names of the jury that will make the awards are not given therein, and it is believed that artists intending to compete would like to know who will be the judges in the competition. It is suggested in this connection that we should announce the names of the judges. They will be the advisory arts council, whose members are Sir Edmund Walker, Toronto; Dr. Francis J. Shephard, Montreal; and Senator Arthur Boyer, Montreal.

PADHAM MUNICIPAL OFFICES.—Members and Licentiates of the Royal Institute of British Architects must not take part in the above competition, because the conditions are not in accordance with the published regulations of the Royal Institute for architectural competitions.

WINNIPEG PARLIAMENT BUILDINGS.—In this preliminary competition, in which the Government of Manitoba invited designs for a building of the estimated cost of £400,000, Mr. Leonard Stokes, F.R.I.B.A., has selected the following five architects to take part in the final competition: Messrs. Brown and Vallance, Montreal; Messrs. Clemshaw and Portnall, Regina, Saskatchewan; Messrs. E. and W. S. Maxwell, Montreal; Messrs. Sharp and Murray, Toronto; and Mr. F. W. Simon, F.R.I.B.A., Liverpool. Each of these competitors will receive a sum of 2,000 dollars. The competition was limited to architects being subjects of the British Empire and practising therein. May the best man win, anyhow, English or Canadian! Meanwhile, our congratulations to Mr. Simon on his securing a look-in for the old country.

A new road, four and a half miles in length, is being constructed between Eastham and Ellicott's Point, at a cost of £30,000, under the direction of Mr. Sydney A. Kelly, surveyor to the Naylor Trustees.

At Tuesday's meeting of the London County Council, the highways committee recommended, and after two amendments had been defeated it was agreed, that the proposals in the Council's tramways and improvements Bill for the construction of tramways from Wood-lane to Harrow-road, and the reconstruction of the tramways from Cassin-road to West India Dock should not be further proceeded with in the present Session of Parliament. This course was decided upon in consequence of the instructions carried in the House of Commons, supporting the objection of metropolitan borough councils to traction by overhead wires.

Our Illustrations.

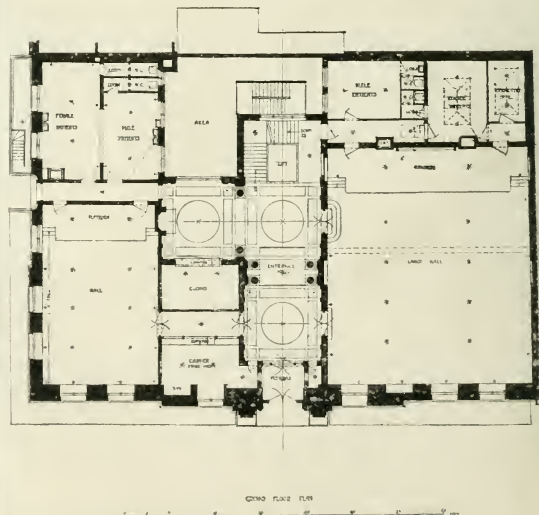
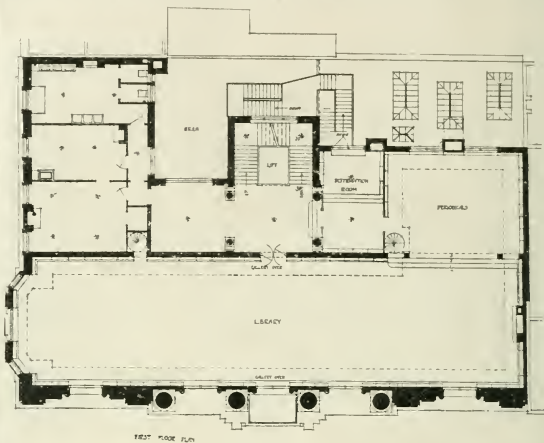
SION HILL, YORKSHIRE.

This house is in course of erection for Mr. Percy Standcliffe on the site of a house erected about one hundred years ago, that has been pulled down to make way for it. The estate until recently belonged to a branch of Lord Harewood's family, and is about four miles from Thirsk, in a richly-wooded neighbourhood, through which the river Wiske winds. The new house is planned so that the principal rooms all get as much sunshine as possible, and face the gardens and river, and several of the windows command fine views of the Vale of York and the Hambleton Hills. The house is being built with 20in. thick

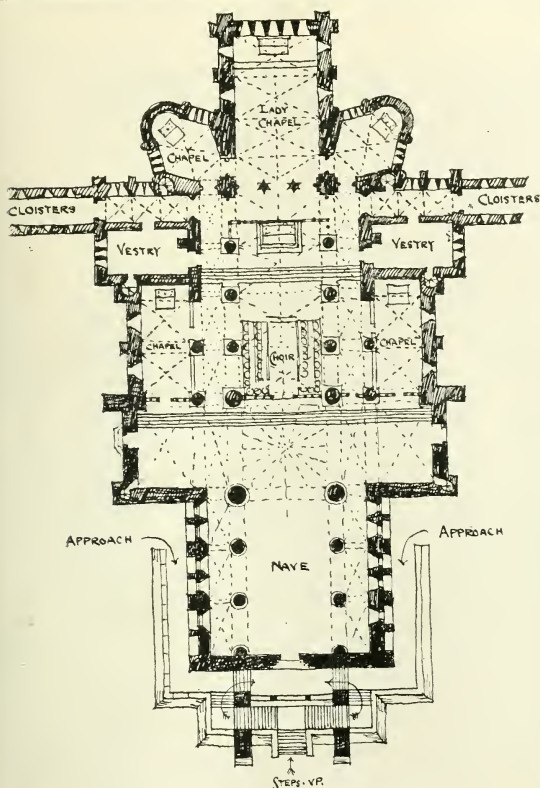
cavity walls, the outer facing being of 2in. thick red hand-made bricks, and the roofs are to be covered with thick, red, hand-made, sand-faced tiles. The entrance porch shown by the view is of Portland stone, which is also used sparingly for windows, sills, strings, etc. The interior is to be treated in a simple but effective manner. The architect is Mr. Walter H. Brierley, of York, and the builder Mr. Thomas Lumdsen, of Newcastle. The illustration is reproduced from Mr. Gascoyne's water-colour, now on view at the Royal Academy Exhibition.

PREMISES OF THE ROYAL SOCIETY OF MEDICINE.

The new house of the Royal Society of Medicine at the corner of Henrietta-street and Wimpole-street, which is to be opened by



NEW PREMISES FOR ROYAL SOCIETY OF MEDICINE, HENRIETTA STREET, W.



CHAPEL OF THE RESURRECTION, NEAR LEEDS.

Design by Mr. TEMPLE MOORE, F.S.A., Architect.

the King on Tuesday, the 21st inst., is of Late Renaissance type. It stands on an area of 10,000 square feet, and consists of a basement, a ground floor, and three additional floors. On the ground floor is a paved vestibule with two meeting halls opening out of it, one accommodating five hundred and the other a hundred and fifty persons. The remainder of the floor is given up to patients' rooms and offices. The library on the first floor, with nearly 100,000 volumes, stretches the whole length of the building, and is 110ft. long, 28ft. wide, and 19ft. high. In an annex is the periodical room, and the central portion of the second floor is the council room, with two committee rooms opening out of it. There is also a tea and conversation room. The third floor contains a museum, a room fitted and equipped for examining specimens and for histological work, a smoking-room, etc. In the basement are dressing-rooms and storage for 250,000 volumes. Messrs. John Belcher, R.A., and J. J. Joass are the architects.

BANKING PREMISES AT MATLOCK FOR MESSRS. WILLIAMS DEACON'S BANK, LTD.

This interesting and characteristic house of 18th-century date has for some time been

used as a bank. Its quiet, well-proportioned stone exterior has, however, been to some extent spoiled by an unsightly addition on the side facing the public road, and the entrance, with its flight of circular steps, has up to now served both for bank and manager's residence. The alterations and additions now in progress consist mainly in providing increased accommodation for the banking business, and entirely disconnecting the same from the manager's house. By lowering the floor-level of bank the interior proportions are improved and an easier approach for the public is obtained. The new entrance vestibule has been designed so as to completely mask the unsightly addition referred to above, and will be executed in Siancliffe stone. The interior is being entirely remodelled, with rich plaster ceiling, marble floor, walls panelled in pine (painted), the fittings, screens, etc., in mahogany, and entrance-door in oak. The manager's house contains some good plaster details of the period, and has a charming old staircase, screened from the hall by an arcade. No architectural feature of the old building will be disturbed (except the lowering of the eills of bank windows), and as it stands in well-timbered grounds, it will to a large extent retain its old-world character.

The work is being carried out by Mr. J. W. Wildgoose, contractor, of Matlock, from the designs and under the direction of Messrs. J. Langham and A. R. Parker, architects, of Manchester. The drawing illustrated herewith is now on view at the Royal Academy.

DESIGN FOR THE NEW CHAPEL OF THE RESURRECTION AT MIRFIELD, NEAR LEEDS.

The Community of the Resurrection at Mirfield, when determining the character of the architecture best adapted to the site and purposes of their great chapel, decided that severe Cistercian simplicity should govern its lines, and Mr. Temple Moore, when making this design, adhered to the promoter's wishes. The accompanying exterior and internal views of his scheme are reproduced from the originals now on view at the Royal Academy, together with the plan which we give here. Two side-chapels flank the choir and two more occur, apsidal shape, north and south of the Lady-chapel, which extends eastwards on orthodox lines. This plan was not adopted.

ARCHÆOLOGICAL.

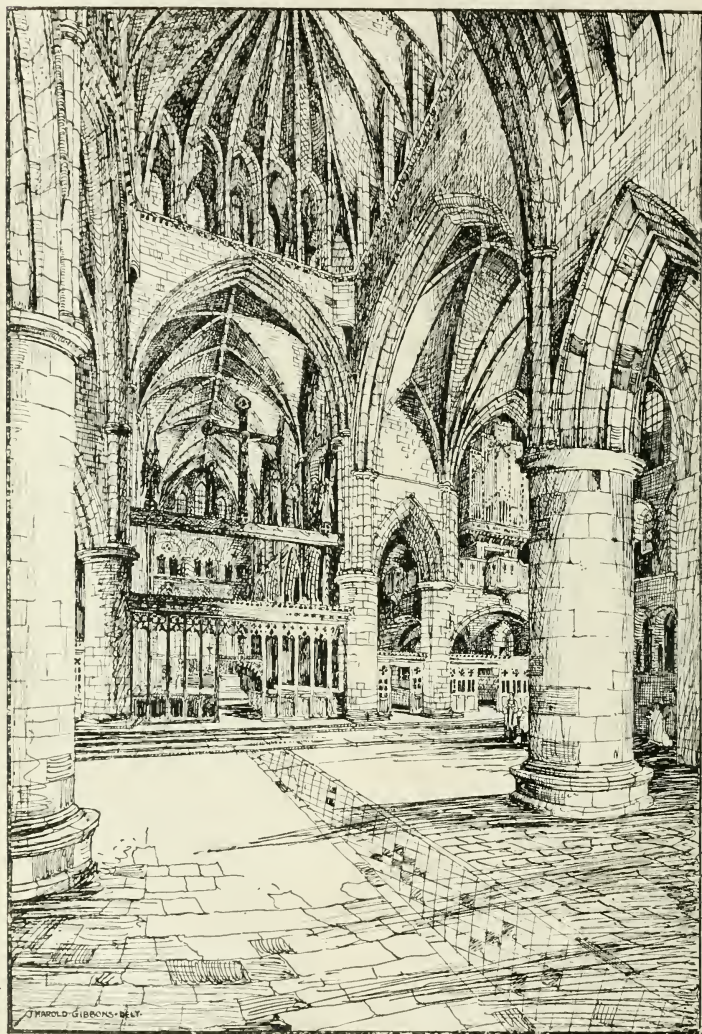
RECENT DISCOVERIES IN PATER-NOSTER-RW.—The recent finds during works of rebuilding at Nos. 8, 9, 10, and 11, Paternoster-row, E.C., were described to the members of the British Archaeological Association at their last meeting by their hon. secretary, Mr. Allen S. Walker. Mr. Charles E. Keyser (president) occupied the chair. Mr. Walker said that in mediæval days St. Paul's Cathedral was surrounded by a wall for the convenience of the clergy. Paternoster-row was just outside the northern portion of this wall. At the end of the Row stood the Church of St. Michael at Bladum, a church which was rebuilt in the 15th century and pulled down after the Great Fire. The boundary line of the parish included an important mansion at its south-west corner. This mansion was followed by another house which could not have been built much earlier than 1640. The earliest remains found during the excavations were Roman pottery and a portion of a Roman pavement. Then there were specimens of Venetian glass and pottery extending from mediæval days down to modern times, as one of the vessels bore a million portrait of George IV. Pipes of all ages were also found. The excavations went down to a depth of 20ft. before the Roman remains were encountered.

The trustees of the Chantry Fund have purchased Mr. F. L. Emanuel's painting, 'A Kensington Interior,' and Mr. Mortimer Brown's bronze shepherd boy—a life-size gilt-bronze figure of a boy with a staff, plucking a thorn from his hand.

The members of the St. Albans and Hertfordshire Architectural and Archaeological Society have visited the castle and the ruins at Benkhamsted. Mr. Charles H. Ashdown acted as guide, and a paper on the architectural features of the castle was read by Mr. Whitford Anderson, A.R.I.B.A.

The Proceedings of the Devon and Exeter Architectural Society for 1911-12, just published, has as a frontispiece an excellent photograph of the president, Mr. E. Cuth Adams, M.S.A., of Plymouth. The society now numbers 49 members, 17 associate members, 16 associates, and four honorary members, a total of 86. The presidential address of last session, by Mr. James Jerman, F.R.I.B.A., published in full, is chiefly descriptive of the International Architectural Congress at Rome, and Mr. Harbottle Reid contributes a paper on Venice, and its reception of the members of the congress.

For the Sir Alfred Jones Memorial Committee, Liverpool, Sir George Frampton, R.A., has prepared designs for a group of symbolical statuary, and these have been accepted. The question of a suitable site is still under discussion. The Liverpool Architectural Society recommends that the approaches to the pier-head should be laid out in such a manner as to afford sites for this and other works of monumental statuary, and this suggestion has commended itself to the favour of the memorial committee. It remains now to be seen what attitude the corporation of Liverpool will take towards the proposal.



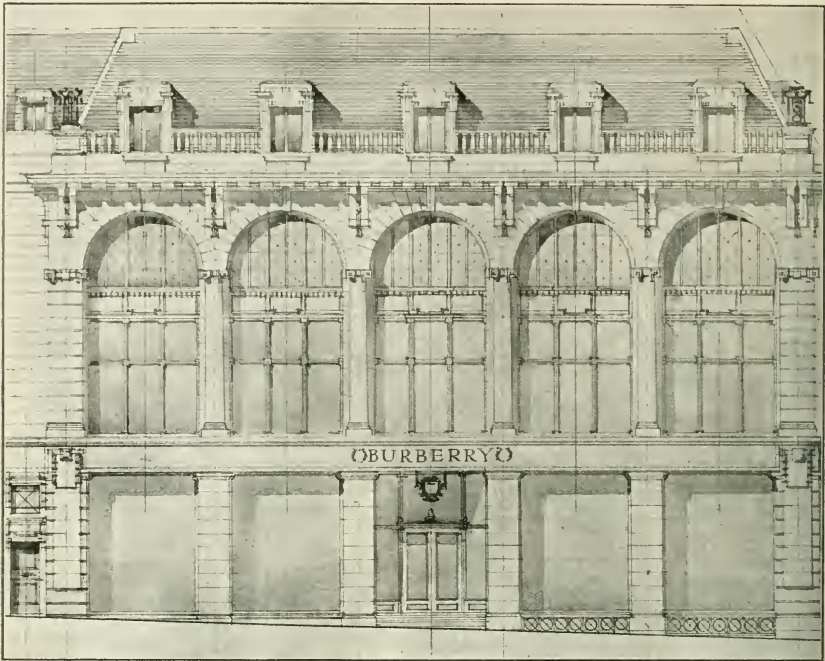
DESIGN FOR THE CHAPEL OF THE

Mr. TEMPLE



SECTION, AT MIRFIELD, NEAR LEEDS.

J. H. GIBSON, Architect.



MESSRS. BURBERRYS' NEW PREMISES, HAYMARKET, S.W.—Mr. WALTER CAVE, F.R.I.B.A., Architect.

BURBERRYS' NEW PREMISES, HAYMARKET.

The façade of this building is in Portland stone, with metal casements. Westmoreland green slates will be used for the roof, with lead ridge and hips. The interior of the building, which has been entirely designed for Messrs. Burberrys' business, will be fitted in oak, and an octagonal central staircase of oak and French stucco. The general effect as seen from the Haymarket is shown by the accompanying elevation. The return façade to the side street is of corresponding design, and the plan of the ground floor here given illustrates the accommodation at that level with waiting and fitting-rooms beyond the great showroom. Our double-page plate is a reproduction of the detail of the front now exhibited at the Royal Academy, and referred to in our review to-day. Mr. Walter Cave, F.R.I.B.A., is the architect.

In the Standing Committee of the House of Commons considering the Light Railways Bill on Tuesday an important amendment was carried against the Government. The amendment imposes on promoters of trackless trolley systems the cost of any necessary street alterations or improvements, and a contribution towards the cost of maintaining the roadways.

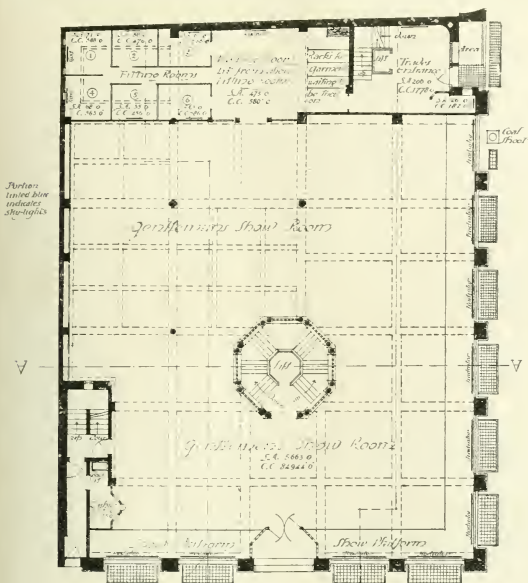
A complimentary dinner and presentation have been given to Mr. C. Chambers-Smith, the late surveyor of Sutton, Surrey, by his fellow townsmen in recognition of his 14 years' service as surveyor to the Sutton Urban District Council. The presentation consisted of a gold chronometer, suitably inscribed, and a cheque, together with a diamond and platinum pendant for Mrs. Chambers-Smith.

PROFESSIONAL AND TRADE SOCIETIES.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general meeting of this association was held on the 1st inst. in the rooms of the association, 117, George-street, Edinburgh, Mr. James B. Dunn, F.R.I.B.A., presiding. The following office-bearers were appointed:—President, Mr. A. Lorne Campbell, F.R.I.B.A.; past-president, Mr. James B. Dunn; vice-presidents, Mr. William Davidson and Mr. T. Forbes McLennan, A.R.I.B.A.; joint secretaries, Mr. James Kerr, 122, George-street, and Mr. P. M. Cunningham, 5, Queen-street; treasurer, Mr. W. G. Walker, C.A., 39, Queen-street; librarian, Mr. James A. Arnott, 15, Young-street; assistant librarian, Mr. H. B. Williamson, 10, Randolph-place. The awards under the Associates' Section prize scheme were intimated:—viz.: Design for terminal railway-station—William Gray; design for pedestal for a bronze equestrian statue—L. Duncan S. MacPhail; 2, Ebenezer King; College of Art summer sketching class competition—Ebenezer King. In the course of his retiring address the chairman said that during the last ten years, in competitions for large municipal and other public buildings, the Classical tradition had held sway, and architecture based on the great Classical designs of Ancient Greece had returned to favour. He referred to the many admirable buildings erected in Edinburgh by the brothers Adam, by Playfair, Hamilton, and Bryce, and said that for scholarly attainments these buildings were difficult to beat. He suggested that the survey of several of these buildings might be made by the younger architects.

EDINBURGH ARCHITECTURAL ASSOCIATION IN GLASGOW.—On Saturday afternoon a party of the members of the Edinburgh Architectural Association visited Glasgow Cathedral, by permission of Mr. W. T. Oldrieve, F.R.I.B.A., H.M. Office of Works, Edinburgh, and the kirk-session of the cathedral. Mr. John Watson, F.R.I.B.A., acted as leader, and explained the historical features of the building. The new roof which is in process of construction conforms to what is known to have been the original design, and is being carried out under the superintendence of Mr. Oldrieve, H.M. Office of Works. The party afterwards proceeded to the new Mitchell Library, in North-street, where they were received by Mr. F. T. Barrett, the librarian. In the absence of Mr. W. B. White, the architect, Mr. Andrew Brown, clerk of works, conducted the party over the building.

NORTHERN ARCHITECTURAL ASSOCIATION.—The roll of the Northern Architectural Association for 1911, according to the fifty-fourth annual report, just published, stood at 223, including 91 members, 88 associates, and 44 students. For the previous year the number was 231, made up of 92 members, 95 associates, and 46 students. The principal officers for the fifty-fourth session are:—President, Mr. William Milburn, F.R.I.B.A.; vice-president, Mr. R. Burns Dick, F.R.I.B.A.; hon. treasurer, Mr. J. T. Cackett, F.R.I.B.A.; hon. secretary, Mr. C. S. Errington, A.R.I.B.A.; hon. librarian, Mr. J. Bruce, F.R.I.B.A. Under the terms of the Glover Trust Deed the council offer two prizes of two guineas each (age limits twenty-five years and twenty-one



PLAN OF GROUND FLOOR

MESSRS. BURDERRYS' NEW PREMISES, HAYMARKET, S.W.

Mr. WALTER CAVE, F.R.I.B.A., Architect.

years respectively) for measured drawings of existing work; two similar prizes of two guineas, with like limitations of age, for finished architectural sketches; and also the Glover travelling studentship, the Glover medal, and a prize of ten guineas to a student or associate. The council further offer prizes in books of the following value:—A first prize of two guineas and a second prize of one guinea for a design for an entrance with gates, lodge, or gatehouse to the forecourt of a mansion approximating in size and importance to Seaton Delaval Hall.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.—A meeting of the council of the above body was held on May 31 at the Institute Rooms, No. 41, South Frederick-street, Dublin. The president, Mr. A. E. Murray, R.H.A., F.R.I.B.A., was in the chair. There were also present: Messrs. W. Kaye-Parry, R. Caulfield-Green, L. O'Callaghan, F. Hayes, C. H. Ashworth, A. G. C. Millar, H. Allberry, J. H. Webb, F. Hicks, G. P. Sheridan, Professor Scott, and C. A. Owen, hon. secretary. The minutes of the previous meeting were read and signed. The correspondence, including several letters from the R.I.B.A. (Royal Institute of British Architects), the Labour Exchange, the National University, the Local Government Board, etc., was dealt with. It was decided to subscribe towards a portrait of the President of the Royal Institute of British Architects. A notice of motion in connection with the examination scheme was handed in.

SCOTTISH BUILDING TRADES' FEDERATION.—The half-yearly meeting of the executive committee of the Scottish Building Trades' Federation was held in the premises of Edinburgh, Leith, and District

Building Trades' Association, 61, Lothian-road, on Friday. Mr. James Farquharson, Aberdeen, president, occupied the chair. Reports from the various centres showed that trade was still very quiet, with no immediate prospects of expansion. Notwithstanding the state of trade, wages were inclined to rise, due to the general unrest and to the increase in the cost of living. It was reported that Mr. Farquharson, the president, had been appointed upon the advisory committee in connection with the National Insurance Act, both for Great Britain and Scotland. A report upon the working of the Act was submitted, and consideration was also given to the effect of the Trades Dispute Act, and proposed amendments thereon were considered, and strenuous support of the memorial by the Employers' Parliamentary Council was advocated. Notwithstanding the depression in the trade during the last few years, the Federation was reported to be in a united and flourishing condition, and the finances were stated to be in a healthy state. It was decided to hold the annual meeting in Inverness in September. The members thereafter, through the courtesy of Mr. John MacLeod and Mr. Darge, inspected the building of the Usher Hall.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—At the annual meeting of the Sheffield Society of Architects and Surveyors (Mr. J. B. Mitchell-Withers presiding), the hon. secretary, Mr. James R. Wigfull, presented the twenty-fifth annual report. Referring to Sheffield's new building by-laws, Mr. Wigfull said there was a want of elasticity in their provisions, while too great a desire to conserve the old methods of building was evinced, and too little encouragement given to more modern methods and materials. Referring to the competition

for plans for the Sheffield King Edward Memorial Cripples' Home, he said that the conditions for the competition had been issued, and the council hoped that the response would be such that the local authorities would be encouraged to follow this example, and again place some of the plans for the public buildings of the city in the hands of architects in private practice. Such a course would promote a spirit of healthy rivalry, from which the city would derive benefit. The report was adopted on the motion of Mr. Potts, seconded by Mr. Frank Winder. It was reported that the past year had seen the credit balance of £60 reduced to £38, and in accounting for this Mr. Wigfull said it was not so bad as it appeared to be, as the society had paid during the year two contributions of £25 (for two years) to the Sheffield University. The election of officers for the ensuing year resulted as follows:—President, Mr. J. B. Mitchell-Withers (re-elected); vice-president, Mr. A. F. Watson (re-elected); hon. treasurer, Mr. R. W. Fowler; hon. secretary, Mr. J. R. Wigfull (re-elected); council, Messrs. W. G. Buck, F. E. P. Edwards, C. B. Flockton, J. R. Hall, C. F. Innocent, H. L. Paterson, H. L. Potter, E. Winder, and F. H. Wrench.

Building Intelligence.

BIRMINGHAM.—The members of the health committee, together with the medical officer of health and Mr. W. H. Ward (the architect), of 29, Paradise-street, Birmingham, last week visited the site of the new sanatorium for consumptives at Yardley for the purpose of considering certain details in the plans. The new building will be erected on land adjoining the existing sanatorium, so that in reality the scheme carried out will be an extension of the present institution. The sanatorium already gives accommodation for 37 patients, but with certain alterations the number can be increased to 73. In the new building there is to be provision for 132 beds, so that when the scheme is completed the accommodation provided will be for 205 persons—namely, men 73, women 72, and children 60. The extension will involve an expenditure of between £20,000 and £30,000.

CONSETT, CO. DURHAM.—The foundation-stones were laid of a new Primitive Methodist church, Sunday-schools, and caretaker's house at Consett the other day. The church will be a stone-built, cruciform structure, having a frontage of 84 ft.; seating capacity, 650. The schools will comprise two main buildings connected by a corridor. The school hall has a platform, nine classrooms, and sitting accommodation for 350 adults. The other building consists of two stories, embracing infant school and classroom on the ground floor, with lecture-hall and women's parlour on the upper story. A caretaker's house is attached. The contractors are Messrs. E. Taylor and Sons, of Blackhill and Newcastle; and the work will be carried out under the direct supervision of the architects, Messrs. J. E. Davidson and Son, of Eldon street, Newcastle.

EAST FINCHLEY.—The Bishop of London consecrated, on Monday evening, the chancel section of All Saints' Church, East Finchley, N. This section, which consists of chancel, Lady-chapel, north transept, vestries, and heating chamber, completes the church, of which the nave portion was built in 1891. The church is 15th-century Perpendicular in style, and externally is built of red bricks, stone being used for all doorways, windows, strings, buttress heads, copings, bell gable, etc. The roofs are covered with red tiles. Internally, the nave, arcade, and columns are of stone, and the walls red brick. The chancel, the east end of which is apsidal, and filled in with five two-light windows, is richly treated with stonework, the scheme of windows being carried along to the north transept and Lady-chapel arcades as stone panelling, the panels being filled between the

stone mullions with brickwork covered with plaster. The open-timber roofs are of wrot, fir with boarded ceilings. A fine carved oak screen divides the nave from the chancel. The main dimensions of the church are: length of chancel, 52ft. by 25ft. wide, and 52ft. high to the roof ridge; length of nave, 80ft. by 25ft. wide, and 54ft. high; the height to the top of cross on bell-gable is 66ft. Messrs. G. G. & J. L. Southampton-street, Strand, W.C., are the architects, and the chancel section of the work has been carried out by Mr. A. Porter, of 608, High-road, Tottenham, N.

LOUGHBOROUGH, LEICESTERSHIRE.—The new church of St. Peter was consecrated by the Bishop of Peterborough last week. The church has frontages to Storer-road and Fearon-street. It accommodates 500 persons, and comprises nave, 83ft. by 38ft. 6in., and chancel is 35ft. by 18ft. 6in. An arcade on north side for connecting the chancel with the morning chapel, to be erected at a future date. On the south side are choir and clergy vestries, lavatories, organ, and heating-chambers. The height of the ceiling is 44ft. above the nave floor. The church has been built with granite, with stone dressings externally, and with Ancaster stone and plaster internally. The floor of the nave is of pitch-pine blocks, and that of the chancel of marbles laid diagonally. The sanctuary floor and steps are of marbles. The cost, exclusive of the furnishings, which have all been given, has been upwards of £6,000.

WESTMINSTER.—The Duke of Bedford laid, on Friday, the foundation-stone of the new Guildhall for Middlesex, Westminster, which has been erected, mainly upon the site of the old building, for the purposes of Quarter Sessions and county administrative work, in Middlesex. The new guildhall, which will be built of Portland stone in the Gothic style, will have a frontage of 163ft. to Little George-street, and of 102ft. to the Broad Sanctuary. The architect is Mr. James S. Gibson, F.R.I.B.A., of the firm of Messrs. Gibson, Skippworth, and Gibson, associated with Mr. H. T. Wakeham, consulting engineer, and the outside will be about £85,000. The contractor is Mr. James Carmichael, of Wandsworth. We illustrated the adopted design when selected in competition in our issue of February 3, 1911.

The death is announced of Mr. Thomas Edward Keen, who for many years carried on business as a builder and contractor at Adin-road and Balaam-street, Plaistow.

Mr. Arthur Harston, F.S.I., of Cawley-road, Hackney, N.E., retired architect and surveyor, a senior partner of the late firm of A. and G. Harston, architects and surveyors, of Leadenhall-street, E.C., who died on April 6, aged 71, has left estate of the gross value of £48,956, with net personally sworn at £38,451. He has left £500 each to the London Hospital and the Queen's Hospital for Children, Hackney-road, N.E.

In the House of Commons on Thursday last week, the Great Eastern Railway Company's Bill, an unopposed measure, passed through committee, and was ordered for third reading. The Bill seeks to give the widening of the line to double tracks of the Cromer line, the Clacton line, and the Felixstowe railway, two deviations of the Recles and Yarmouth line, the widening of a bridge at Ipswich, two river works at Lowestoft, widening of the River, and the extension of the existing breakwater at Lowestoft. The total estimated cost of the works is £227,729. Evidence was given in support of the measure by Mr. Jones, engineer to the company.

At a vestry meeting held at Sutton, Herefordshire, it has been decided to replace the ancient and picturesque stone-tile roof of St. Nicholas Church by green Westmoreland slates. The tender of Messrs. E. W. Wilks and Son, of Hereford, was accepted for carrying out the work in accordance with plans and specifications prepared gratis by Mr. Geo. Andrews, of Rose Bank. The stone tiling now condemned has probably served for 500 years. The church of St. Nicholas, whose registers date from 1580, is a fine example of the Norman style of architecture, affording excellent accommodation for 145 persons, and a beautiful feature is an embattled tower at the west end.

Correspondence.

ARCHITECTS' ASSISTANTS AND REGISTRATION.

To the Editor of the BUILDING NEWS.

SIR,—I am requested to inform you that at the annual general meeting of the Guild of Architects' Assistants, held at Prince Henry's Room, 17, Fleet-street, E.C., on May 1, the president of the Guild (Mr. A. W. S. Cross, M.A., F.R.I.B.A.) in the chair, the following resolution was proposed by Mr. S. Douglas Topley, A.R.I.B.A., seconded by Mr. J. V. Hibbert, F.S.I., and carried unanimously:—

"The Guild of Architects' Assistants declare itself in opposition to the published proposals for the Registration of architects, and calls upon its members and friends in the promoting societies to oppose any measure lacking complete provision for the interests of the pupil and the assistant."

Copies of this resolution have been sent to the Royal Institute of British Architects and the Society of Architects.

ERNEST J. DIXON, A.R.I.B.A.,
Hon. Secretary.

137, Church-street, Edgware-road, W.

THE DECADENCE OF ENGLISH ARCHITECTURE.

SIR,—There is, of course, much in the letter which appeared under this heading in last Friday's BUILDING NEWS, and written by Messrs. Alfred Cross and George Hubbard, with which most of those who have any interest in education in this country will cordially agree; but whether this British Government is ever likely to adopt the proposals propounded as to an enforced standard of architectural examination is open to serious doubt.

Meanwhile, I venture to urge that much might be done on the lines thus put forward for the more intimate association of architectural students with the training of sculptors and painters, such as surely might be realised in the schools of the Royal Academy. No other means at present available offer greater possibilities, and it is also certain that no Governmental scheme, limited as proposed, to educational equipment for architects, would be more likely to advance the art of architecture, or would more surely accrete efficient training in scholarly architectural design than could be accomplished by the all-round artistic environment to be insured by our Academy of Arts. No strictly statutory scheme under departmental direction is calculated to promote the Fine Art in the same degree.

The Royal College of Art has, we know, already given proof of a decided advance in the right direction; but it is little calculated to realise the description of what is needed as given in Messrs. Cross and Hubbard's letter. If the Architectural Association would be content to act, in its strictly speaking educational work, as a preparatory school working in concert with the Royal Academy, I feel sure that the results before long would more than justify the change. As a matter of fact, the classes at Tufton-street, admirable as they are, lack the breadth of outlook and scope of comprehensiveness in an artistic sense such as the Academy could afford when following upon a thorough technical grounding of the student in the more preparatory classes at Tufton-street—always, of course, provided that the necessary developments to enable this to be done would be made in the Architectural Schools at Burlington-gardens.

At the present time, if one may judge from the average degree of merit displayed by the annual exhibitions of students' designs at the Royal Academy, there is much room for improvement such I contemplate would be undertaken.

The Royal Architectural Museum premises, as I am given to understand, are little adapted to allow of the needful extensions

of the school accommodation to permit of the conduct and expansion of both the elementary and advanced classes now held in the building. Alterations are, therefore, contemplated which seem likely seriously to interfere with the carrying out of the undertaking under which the gift of the buildings and their contents was accepted ten years ago by the Architectural Association, when it was insured that the collection of the Royal Architectural Museum should be maintained and kept open to the public for ever.

I do not say that any intentional departure is proposed from the understanding entered into at the time of the transfer, and which, in fact, was made the subject of a binding agreement; but it seems not unlikely, if the schools outgrow the premises, that the existence of the Museum will be jeopardised, and it has never seemed to me to have been quite satisfactorily conducted since the rehousing took place, though, under the present circumstances, which followed the transfer, I was prevented from intervening or from helping in the re-arrangement. Should more spaces still be allocated to the increasing of the classrooms, the difficulty will be intensified, for the collection has to be maintained intact.

When initiated the transfer, I always contemplated a free hand in the administration of the Museum by the Architectural Association—subject, however, to the governing proviso just alluded to; and this undertaking could better be carried out if the Tufton-street school could be treated as preparatory in union with the Royal Academy of Arts; also I have reason to believe that the Council would rise to the opportunity by co-operating with the Council of the Architectural Association, with the object of perfecting a more complete scheme of architectural training, such as I think would be far better than any provided by Governmental enactment like that advocated by Messrs. Cross and Hubbard.—I am, etc.,
May 6, 1912. MAURICE B. ADAMS.

ARCHITECTURAL DRAWINGS.

SIR,—I am afraid your remarks in the opening sentences of your review, in your last issue, of the drawings, anent the now common practice among us of having our perspectives made by clever water-colourists are too true. I am sorry for it. I suppose in this connection vagueness too often does duty for the pleasant and poetic, while precision is thought austerity and strenuousness. The artist's picture, with its lines indicated, but not distances, and its lines pleases and attracts clients who would take no delight in the architectural drawing, exact, mathematical, and to scale.

All the same, it is a pity. It is not your fault, Sir, nor that of the other architectural journal which architects read, that your illustrations are of far less value to us than of yore. I have taken your paper for more than half a century, and bear friendly witness to your endeavours to keep the front place as regards processes of illustration from the days of the inimitable woodcuts of Orlando Jewitt, with their splendid accuracy of detail, through the era of photolithography, down to the present times of half-tone work, of which yours is the best. But, really, I sometimes wonder why you give present-day illustrations at all. I am, of course, of executed buildings. We appreciate to the utmost occasional treats, like the reproduction of Professor Rimington's beautiful interior you gave us the week before last; but, really, a reproduction of a photograph from the building itself would be much more useful to us other architects than nine out of ten of your reproductions of present-day coloured drawings. I confess I felt personally grateful to Mr. Thomson for the faithful and business-like illustrations of his cottage hospital and the excellent double-page elevation in your issue of the 26th ult.

These, Sir, are the illustrations we other architects value. You know it, and you know why. They present to the eye, no doubt, and do to show clients, and suggest they want "something like that"! Don't

they wish they had got it, sometimes! But the careful line drawings made by the architect himself, or in his office, of the sort you mostly gave a dozen years ago, are more instructive, more helpful, and more business-like.

The garden-suburb, sprawling, richly-riced, which your amateur water-colourists favour us with in their endeavours to imitate the half-dozen colourists who know how "to do the trick," really send a good many of your plates to the buttermilk instead, as of old, to our portfolios.

It is too much to expect that a friendly grumble like this may have any effect; but, Sir, I humbly suggest you might help by giving preference to drawings of the sort I suggest when choosing subjects for illustration. Otherwise, Sir, I should give fewer, and devote the space to really practical drawings.—I am, etc., SENE.

THE ARCHITECTURAL ASSOCIATION ATHLETIC CLUB.

SIR.—The Council of the Architectural Association have very kindly given the general committee of the Athletic Club power to elect any member of the kindred professions—i.e., architecture, painting, sculpture, and surveying—as a member of the club. We should therefore be very grateful to you if we may announce this in your valuable paper.

The club was founded in 1906, and, owing to its growing popularity, it was decided to purchase a ground of 6½ acres at Boreham Wood, which is situated near the station, and about half an hour from town. The whole of this land has been drained and levelled, and Rugby football, hockey, and cricket pitches arranged. We have also erected an excellent pavilion, with accommodation for changing, washing, and light refreshment. The ground was formally opened last summer by Lady and Sir Aston Webb, and is considered to be one of the best in the County of Hertford. It has cost nearly £2,500, and I may say that donations to the ground fund are greatly needed.

The club, besides its cricket and golf branches, all of which are very flourishing. Members wishing to join the club should apply to me, c.o. the Architectural Association.—I am, etc., JOHN H. SQUIRE.

Hon. Secretary A.C.

5, John-street, Adelphi, W.C.

PARLIAMENTARY NOTES.

ARCHITECTURAL ASSISTANTS IN H.M. OFFICE OF WORKS.—In the House of Commons, Mr. Snowden inquired whether a decision had been arrived at in regard to placing the architectural assistants engaged in H.M. Office of Works upon the established list; whether the undertaking given on December 7, 1911, that the wishes of all the men in this class in regard to their desire to be established would be ascertained, had been carried out; and if any scheme had been prepared, whether he would sign the resolutions he proposed made.—Mr. Benn said the scheme had been submitted to the Lords Commissioners of His Majesty's Treasury, which provided for the establishment of a staff of permanent architectural draughtsmen and technical assistant architects.

A new clock was formally started in the central tower of St. Giles's Cathedral, Edinburgh, the other day, as the fourth to be put in the belfry, and replaced one made by L. Bradley, of London, in 1721. It has been constructed and presented by Messrs. James Ritchie and Sons, of Edinburgh. The work of placing the clock in position, including the structural alterations, was carried out under the supervision of Mr. Williamson, the city architect.

A white marble bust of King Edward, presented to the West Norfolk and Lynn Hospital by Mrs. J. T. Ramsden, of Middleton Tower, King's Lynn, was unveiled by the donor on Friday last. The bust was considerably enlarged as a county memorial to the late King, and over the first landing on the new main staircase a niche was left to receive the bust of his Majesty, which has now been presented. It is the work of Mr. Walter Merritt, and is a replica of one by the same sculptor in the Guildhall, London.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Readers are invited to send in replies, and no address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasize real names, and would not ignore the fact that quibblers want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about 100 words, as they are meant to be reduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

QUESTIONS.

[13098].—TIMBER ROOF.—Will some reader kindly show me the best construction for roofing a room 24ft. 6in. square? The roof is to be of timber, and should be laid on all sides, and no ceiling or top-light is desired.—QVIX.

LEGAL INTELLIGENCE.

A BRICKMAKING MACHINE ACTION.—Messrs. John Whitehead and Co., Ltd., v. the New Outwood Plastic Brick and Terra-cotta Co., Ltd. The plaintiffs, who are brick-making-machine manufacturers, of Preston, brought this action at Manchester Assizes on Monday to recover from the defendants, a Whitefield firm, £224 2s. 9d., the price of a brick-making machine supplied to the defendants. The defendants denied liability, and counterclaimed for £75, which they had paid as the first instalment of the price of the machine. Mr. Langdon, K.C., and Mr. Acton represented the plaintiffs, and Mr. Adams and Mr. Moxon, the defendants. Mr. Langdon opened the case for the plaintiffs, which was that the machine—the first made under the patent—having been ordered by and delivered to the defendants, was on their premises for some months. It was not worked continuously (the plaintiffs alleged) because the defendants were short of material; but some of Messrs. Whitehead and Co.'s men attended at the New Outwood Company's works for the purpose of supervising it at the beginning, and they left it, after a number of satisfactory tests, in perfect working order. For the defendants, it was contended that the sale of the machine was conditional on its giving satisfactory results, but that, in fact, the bricks that it made were defective. It was also contended that the makers were given notice that the machine would not be accepted, and that it must be taken away, but that they agreed to an arrangement by which the machine was to be left at the works, which were then being offered for sale, to be sold on behalf of the makers if possible. This the plaintiffs denied. The witnesses for the plaintiffs were Mr. Adams, a representative of the machine, who said that on one occasion the machine made bricks at the rate of 840 an hour for five or six hours, and at one time and another made about 25,000 bricks in all. On the other side, several witnesses said the bricks were cracked, or misshapen, and unsaleable. The hearing was adjourned until Tuesday, when, in giving judgment, Mr. Justice Scrutton described the machine as experimental, and said that no machine made according to the patent had been used for ordinary commercial use before that which was sent to the defendants. It was a machine devised to mould bricks and press them in the same machine. He said the defendants kept the machine, and at one time it was delivered the machine did not work satisfactorily—the condition on which the defendants were to purchase it. As to a contention by the plaintiffs that, even if this was so, the defendants kept the machine, and thus changed the condition, he held that there was nothing to affect the conclusion he had come to on the merits of the machine. He gave judgment of the claim for the defendants, with costs. He gave judgment for them on the counterclaim.

THE EUSTON-ROAD BUILDING LINE DISPUTE.—On Tuesday, May 7, a King's Bench Divisional Court, composed of the Lord Chief Justice and Justices Pickford and Avory, had before them another stop in the Euston-road building line dispute. The matter came

before the Court on a rule nisi for mandamus obtained by the London County Council and directed to the Tribunal of Appeal, calling upon them to show cause why they should not only state one special case for the purposes of appeal, instead of three special cases. Mr. F. F. Dally appeared for the L.C.C., Mr. A. H. Bethune for the Metropolitan District Railway, Mr. A. L. Woolton for the owners of the Adam and Eve public-house, and Mr. Herbert Smith for the trustees of the late Mr. Leslie.—Mr. Bethune said a rule had been obtained ordering the Tribunal of Appeal to show cause why they should not state one special case in the matter of certain appeals against the Tribunal's decision as to the L.C.C. superintendent architect's certificate re a building line in the Euston-road. The ground of the rule was that the Tribunal, having given a decision in the matter of several appeals, decided to state three special cases, one for each appellant. Mr. Dally objected on behalf of the County Council to the stating of three separate cases. The Metropolitan Railway Company wanted a special case dealing with their own water, because they said their point was entirely different from the others. The Tribunal of Appeal had expressed its willingness to state special cases with a view of points of law if the Court so ordered. Replying to the Lord Chief Justice, counsel said the superintendent architect, at the instance of the County Council, laid down a general building line in the Euston-road. The line, originated by the County Council, was binding to Leslie's trustees, and ran from Oneshurch-street to Hampstead-road, and included the Metropolitan Railway Company's property as well as the Adam and Eve public-house.—The Lord Chief Justice asked the Tribunal whether the one special case stated for all the appeals?—Counsel: Yes.—His Lordship: On what ground?—Counsel: They say it would be more convenient to have the one case and one set of counsel. We object, because we have a point of law arising from the others.—His Lordship: What point are you raising? Counsel: The Tribunal has held that there is no general building line at all, because all the houses within a certain distance marked on the map have been taken down. That is a decision in favour of the Metropolitan Railway Company, and that is the only point that could be raised for argument on their case. With regard to the other appellants, the Tribunal has held that the building line applied to them all right, while, on the other hand, the Tribunal has decided in favour of the Adam and Eve public-house, holding that it was built on old foundations, and that it was not a new building line.—The Lord Chief Justice (to Mr. Dally): Why do the County Council object to the three cases?—Mr. Dally: The Act of Parliament says one case is sufficient, and that would be less expensive. The Lord Chief Justice: But they want to take the building line through your property, Mr. Bethune?—Mr. Bethune: Yes.—His Lordship (to Mr. Dally): Under what section of the London Building Act do you argue that only one case is sufficient?—The Lord Chief Justice: Section 22. Continuing, Mr. Dally said there was only one proceeding before the Tribunal, and that was as to the general line. It was not a matter between parties. If there had been a matter between the County Council and the railway and about different sections of a road, things would have been different. Replying to the Lord Chief Justice, Mr. Dally said, at the present moment, the only real appellants are the County Council and the Metropolitan Railway Company, while the L.C.C. would also be respondents if there were ultimately other appellants. The section of the Act dealing with the matter said that one case should be stated, and that the Tribunal was not to state more than three or more cases would be stated.—Mr. Justice Pickford: If you have only one case, which of the three other parties would come to oppose you?—Mr. Dally: They could all come, and we are against them all. (Laughter.) The Lord Chief Justice said, in his opinion, the rule should be discharged, for Mr. Dally had not shown the Court any section which could make them order the Tribunal to state only one case, or three separate cases, and appeals. There was, he thought, no power in this Court to fetter the jurisdiction of the Tribunal as to how many cases it should state.—Mr. Justice Pickford agreed. He said the facts showed that there was no objection to the building line. There were several of those objections; but the Court was only asked to deal with three of those, one by the Metropolitan Railway Co., one by Leslie's trustees, and one by the owners of the Adam and Eve public-house. The first two appealed to the Tribunal, but the owners of the Adam and Eve were only heard as interested parties. The Tribunal decided in favour of the Metropolitan Railway Company, but against Leslie's trustees, and they were then asked to state a case with

regard to the Western and Eastern ends of the line by the L.C.C., and in regard to a piece of the middle of the line by Leslie's trustees. The Tribunal was willing to state cases in regard to the three different parts of the line, and state their reasons for acting as they did in each case; but the County Council said that only one case was necessary, and tried to prohibit the Tribunal from stating more than one. He did not think it was necessary to decide whether the cases were separate or not, for there was no doubt that the cases were different and distinct, and one had only to look at the plan of the building line to see that the statement of the Tribunal as to the necessity for three special cases was the correct one. Even if only one case were stated, all three of the parties interested would have to appear before the Court, and the board, and therefore, there would be three lots of contentions and facts. So he thought, when the Tribunal decided to state three cases, they decided quite properly, for by that means the appeals would be dealt with more satisfactorily. Mr. Justice Avey concurred, and the rule was discharged with costs against the L.C.C.

Our Office Table.

As we briefly mentioned last week, the Council of Liverpool University at its last meeting agreed to found a Chair of Civic Design in the University, and to appoint to it Mr. S. D. Adshead, who for the last three years has held the position of Associate Professor and Lecturer in this subject. The appointment is for a term of eight years from January 1, 1912, the funds having been provided by Sir William Lever for this period. Professor Adshead will be in residence at the University for two terms only each session, the remaining term being devoted to travel and research. Liverpool is the only University in the kingdom that has been able to recognise adequately the great importance of the subject of civic design and its real value as an educational instrument.

The Ravenhead Entrance Scholarship to the School of Architecture of Liverpool University, particulars of which will be found in an advertisement column, is open to any architectural student between the ages of eighteen and twenty-three years on June 1. Candidates shall be required, on or before June 1, to submit to the Professor of Architecture not more than six sheets of drawings and designs, attested as their own work, together with evidence of having studied the elements of building construction. The drawings must be accompanied by a written statement giving details of general and professional education. Selected candidates must go to Liverpool, if thought necessary by the examiners, and submit themselves to a short examination, oral or otherwise. The examiners will be the Professor of Architecture and the two Lecturers in the school. The successful candidate must take the Certificate Course in Architecture (which exempts students from the Intermediate Examination, R.I.B.A.), and enter upon it in the following October term. The scholarship may be withheld by the University in the second year on the report of the Professor of Architecture as to the work done by the scholar during the first year.

An unexpected hitch has occurred in the proposal to re-erect in Platt Fields the Ionic façade of the old Town Hall now being demolished in King-street, Manchester. It will be recollected that three months ago, when the old town hall, which for some years has been utilised as a free library, was sold by the Manchester Council to Messrs. Lloyds Banking Co., Mr. Ezra Wood, R.I.B.A., the president of the Manchester Society of Architects, suggested that it would be a pity if so excellent an example of Modern Classic as the stone front, with its statuary, should be destroyed. Messrs. Lloyds, who are erecting new branch premises on the site, with the admirable public spirit willingly gave the materials of the facade to the City, and Mr. Wood and his friends speedily raised by subscription the estimated cost—£450—of its removal to, and reconstruction in, one of the municipal open spaces. The trust was

accepted by the Parks Committee, who recommended as a site the verge of the absolutely flat Platt Fields, in a southern suburb, and close to the main thoroughfare, the Wilmslow road, and not far from a new red-brick hall, Georgian in style. When the recommendations were before the City Council of Manchester at the last meeting, Mr. E. F. M. Suman raised a vigorous protest against the suggested site, asserting that the erection there of the façade would spoil one of the beauty spots of the city. Mr. Thomas Fox, deputy-chairman of the committee, agreed to take the proposal back for further consideration. There ought to be no difficulty in finding, with Mr. Wood's aid as adviser, a more suitable and secluded locale, with the advantages, not possessed on Platt's Fields, of a background of foliage—if an ornamental lake could be introduced as a foreground, all the better.

A Parliamentary Paper issued on Monday contains the seventy-third annual report of Sir H. Maxwell Lyte, Deputy Keeper of the Public Records. The list of books and documents transferred to the Public Record Office during 1911 includes a large number of assize records from the clerks of assize from various circuits. The earliest are those of the South-Eastern Circuit, which begin in 1550. The Foreign Office has sent 540 volumes of archives, chiefly of the British Embassy in Berlin and the Legations in Munich, Stuttgart, and Guatemala. From the War Office came 336 volumes of Militia records from 1778 to 1909. Progress is recorded with the systematic calendar of the Patent, Close, Charter, Fine, and Chancery Rolls, the "Inquisitions Post Mortem," various classes of State papers, and Treasury books. Records have also been carried on in the Archives of Rome, Venice, Spain, Brussels, and Vienna.

The picturesque village of Sharnbrook, on the Ouse, within a few miles of Bedford, is now the scene of an interesting experiment under the Housing and Town-Planning Act by the Bedford Rural District Council, who have made a start by erecting six model cottages at the cost of £175 each, including water supply, drainage, and asphalted. The total loan for the work is one of £1,000, repayable at 3½ per cent., interest and sinking fund, in thirty years. The houses are provided with a generous extent of garden ground—thirty poles to each habitation. The rent is four shillings a week—rather a high one for a purely agricultural district. The houses are in blocks of three, on high ground, about one hundred and fifty yards from Sharnbrook Station. They are substantially built of good brick, with green-painted doors and white casements, the roofs slated with Bangor slates. Entering the front door, on the right hand is a well-proportioned living-room, paved in red and white, and fitted with shelves and cupboards and a combined kitchen range. Behind are a scullery, a pantry, and a large cupboard. Outside, at the back, are coal-barn and other domestic offices. A staircase leads to the bedrooms, of which there are three, all opening out of a corridor, and painted in cream and green. All the woodwork is of deal, and the joinery is of English make. The water supply is obtained from a deep well equipped with a "safety" water-elevator. A tar-paved path is being laid down behind the houses.

The Museum and Art Gallery Committee of the York Corporation have resolved to promote an exhibition of the works of William Moore, sen., a resident in York, and a painter of portraits and miniatures of great merit. Five of his sons made painting their profession. Edwin and William Moore, jun., who practised as teachers of drawing and painting in the City of York, were also artists of more than ordinary ability. John Collingham Moore, Henry Moore, R.A.; and Albert Moore sought a wider field for their talents in London. J. C. Moore was a portrait and landscape painter of recognised ability; Henry Moore, R.A., a distinguished marine and landscape painter; Albert Moore's work was decorative, and he was unrivalled as an idealistic artist and

colorist. The exhibition will be held in the South Galleries, consisting of three large rooms, fire and damp-proof, and specially constructed for the exhibition of works of art. It is the urgent desire of the committee to secure a thoroughly representative collection of the very best examples obtainable, and that excellence, rather than numbers, should be the principal feature of the exhibition, and they hope that corporate and individual donors, and especially a member of the "Moore" family will do them the favour of placing their best examples at the disposal of the committee for the purposes of this special exhibition, inaugurated in the artists' native city. The exhibition will be held in the City of York Museum and Art Gallery, and will consist entirely of works by the "Moore" family. It will be opened on the third week in August, 1912, and remain open for a period of six weeks.

An inquest has been held at St. Pancras on the three men who on April 24 were crushed to death by falling brickwork while demolishing a building used as a stores by the Gas, Light, and Coke Company on land at Battle Bridge-road, Frederick Warren, one of the St. Pancras Borough Council's surveyors, said he disapproved of the removal of all the cross-ties, but did not approve of the wholesale way in which large buildings were demolished, and if he had charge of the work he should incur extra cost. The coroner said he thought it would be beneficial if the law provided that every building should be demolished under the supervision of the local governing bodies. The jury returned a verdict of "Accidental death," and added as riders: "That the coroner be asked to represent to the authorities the need for inspection of buildings, and, further, without attaching any blame to the contractor, we think that in the future breaking up of these arches the men engaged in breaking up iron and brickwork should be at a safer distance away from the actual demolition."

Since the Leaning Tower of Pisa was examined and reported upon in 1817 by Messrs. Creasy and Taylor, English architects, the amount of its declination has increased, according to a report by a Royal Commission of experts presented to the Italian Government, by 5½ centimetres to the lineal metre. The worst menace to the safety of the famous structure is due, they report, to the presence of strong currents of fresh water athwart the base of the tower. These currents, undermining the foundations, must have already created notable hollows in the subsoil, and, what is more serious, an effectual means have hitherto been devised for checking them. The final words of the report are: "The tower is not, we think, in immediate danger. Nevertheless, hurry up with your preventive measures if you wish to avert another such catastrophe as that of the Campanile de Venice."

A process of wood-seasoning by electricity, which is said to be working in France, is given in an American Consular report. A large tank is filled with a solution containing 5 per cent. of resin, 10 per cent. of borax, with just a trace of carbonate of soda. At the bottom of the tank is a large lead plate connected to the positive pole of a dynamo. Upon this plate the timber is stacked until the tank is full. Then another plate is superimposed upon the timber and connected with the negative pole of the dynamo. When the current is turned on, it passes through the stack of wood, from plate to plate, and in its passage it is said that the sap is driven out, and the resin and borax takes its place, being deposited in the cells and interstices. After this operation is completed the timber is taken out and dried. It is then ready for use. The result, it is claimed, is highly satisfactory; for, no matter how green the timber is when placed in the tank, after treatment it is said to be completely seasoned.

Messrs. J. Craig and J. M. Ralston, Arthurlee-street, Barnhead, Renfrewshire, have patented a cement for general building purposes, which consists of a mixture of

LATEST PRICES.

| IRON. | | | |
|---|-------------------|---------------|---------------|
| Steel Joists, Belgian and German (see steamer, London) Per ton | £5 13 6 | to | £21 7 6 |
| Steel Joists, English | £6 10 0 | to | £18 0 0 |
| Wrought-iron, English | £6 10 0 | to | £7 8 0 |
| Steel Girder Plates | 7 2 6 | to | 8 3 6 |
| Bar Iron, good Stuffs | 8 5 0 | to | 8 10 0 |
| Square | 20 0 0 | to | 20 0 0 |
| Do, Welsh | 21 6 0 | to | 21 7 6 |
| Best Plates | 8 0 0 | to | 8 16 0 |
| Scott Stuffs | 8 0 0 | to | 9 10 0 |
| Best Sheet-iron | 8 0 0 | to | 8 16 0 |
| Builders' Hoop Iron, for bonding, &c., £25 10s. to 20s. | | | |
| Builders' Hoop Iron, galvanised, £15 to £18 10s. per ton. | | | |
| Galvanised Corrugated Sheet | £18 to 20 | No. 18 to 20. | No. 22 to 24. |
| £7s. to 8s. long, inclusive | £13 0 0 | to | £17 10 0 |
| Beet ditto | 13 0 0 | to | 14 0 0 |
| Wire Nails (Points de Paris) — | | | |
| 3 7 0 9 10 11 12 13 14 15 | 13 14 15 16 17 18 | B.W.G. | Per cent. |
| 3 8 9 9 9 9 10 11 12 13 14 15 | 13 14 15 16 17 18 | per cent. | Per ton. |
| Cast-Iron Columns | Per ton. | | |
| Cast-Iron Stanchions | £10 0 0 | to | £10 0 0 |
| Roller-Iron Fencing Wire | 8 5 0 | to | £10 0 0 |
| Roller-Iron Fencing Wire | 6 4 0 | to | £10 0 0 |
| Cast-Iron Sash Weights | 7 16 0 | to | 8 6 0 |
| Cast-Iron Sash Weights | 6 0 0 | to | 8 5 0 |
| Galvanised Wire Strand, 7 pils. | 14 0 0 | to | — |
| Corrugated Iron, 24 gauge | 14 0 0 | to | — |
| Galvanised Wire Strand, 7 pils. | 14 0 0 | to | — |
| B.W. Drawn Fencing Wire, Galvanised | | | |
| 0 6 8 9 10 10 10 0 2 12 15 0 21 15 0 11 12 15 0 | | | B.W.G. |
| Cast-Iron Socket Pipes— | | | |
| 3-in. diameter | £8 2 6 | to | £8 7 6 |
| 4-in. do. 6-in. | 8 7 6 | to | 9 0 0 |
| 6-in. do. 8-in. | 8 7 6 | to | 9 0 0 |
| (Coated with composition, 6s. 6d. per ton extra | | | |
| tinned and bored joints, 6s. 6d. per ton extra | | | |
| Per ton | | | |
| Cold Blast, Lillishall | 110s. 0d. | to | 117s. 8d. |
| Hot Blast, ditto | 70s. 0d. | to | 78s. 0d. |
| Wrought-Iron, Standard (plus 2½ per cent.) | | | |
| Gas-Tubes | | | 75 p.c. |
| Water-Tubes | | | 67½ |
| Galvanised Gas-Tubes | | | 67½ |
| Galvanised Water-Tubes | | | 67½ |
| Galvanised Gas-Tubes | | | 67½ |
| Galvanised Water-Tubes | | | 67½ |

OTHER METALS.

| | | | | | | |
|---|---------------|---------|----|----|---------|----------|
| Spelter, Silesian | Per ton | \$25 10 | 0 | to | \$25 15 | 0 |
| Lead Water Pipe, Town | ..... | 20 | 17 | 6 | 0 | 0 |
| Lead Gas Pipe, Town | ..... | 21 | 12 | 0 | 0 | 0 |
| Lead Bazel Pipe, Town | ..... | 21 | 12 | 0 | 0 | 0 |
| " " " Country | ..... | 21 | 17 | 6 | 0 | 0 |
| Lead Pipe, Tinned inside, Town | ..... | 23 | 12 | 0 | 0 | 0 |
| " " " Country | ..... | 23 | 13 | 6 | 0 | 0 |
| Lead Pipe, Tinned inside and outside | ..... | 25 | 7 | 6 | 0 | 0 |
| " " " Country | ..... | 26 | 2 | 6 | 0 | 0 |
| Composition Gas-Pipe, Town | ..... | 23 | 17 | 6 | 0 | 0 |
| " " " Country | ..... | 23 | 12 | 0 | 0 | 0 |
| Lead Soil-pipe (up to 4 in.) Town | ..... | 23 | 17 | 6 | 0 | 0 |
| " " " Country | ..... | 24 | 12 | 0 | 0 | 0 |
| [Over 5 in. \$1 per extra in.] | | | | | | |
| Lead Shot, in 28-lb. bags | ..... | 24 | 10 | 0 | 0 | 0 |
| Copper Sheet | ..... | 73 | 10 | 0 | 0 | 66 10 0 |
| Copper, Britanic Cast and Ingot | ..... | 73 | 16 | 0 | 0 | 73 10 0 |
| Tin, English Ingots | ..... | 216 | 0 | 0 | 0 | 216 10 0 |
| " " " Cast | ..... | 216 | 0 | 0 | 0 | 216 10 0 |
| Do., Bars | ..... | 217 | 0 | 0 | 0 | 217 10 0 |
| " " " Cast | ..... | 217 | 0 | 0 | 0 | 217 10 0 |
| " " " Country | ..... | 20 | 7 | 6 | 0 | 0 |
| Galvanized Pipe | ..... | 21 | 2 | 6 | 0 | 0 |
| Galvanized Pipe Lead | ..... | 21 | 2 | 6 | 0 | 0 |
| Galvanized Pipe Lead | ..... | 21 | 2 | 6 | 0 | 0 |
| Sheet Red Lead | ..... | 22 | 0 | 0 | 0 | 0 |
| Refined Zinc | ..... | 33 | 10 | 0 | 0 | 0 |
| Old Lead | ..... | 33 | 10 | 0 | 0 | 0 |
| Tin | ..... | 216 | 0 | 0 | 0 | 0 |
| Cast Nails (per cwt. basis, ordinary brand) | ..... | 0 | 11 | 0 | 0 | 0 |

TIMBER.

| CONFECTIONAL. | | | |
|--------------------------------|-------------------------|------------------------------|------------|
| Per St. Petersburg | Standard | 1000—12ft. by 14in. by 11in. | |
| Yellow Pine Deals: | 1st quality | \$34 00 | to \$43 00 |
| | 2nd | 24 00 | 26 00 |
| | 3rd | 18 00 | 19 00 |
| Spruce Deals: St. Johns | | 8 00 | 11 00 |
| | Miramichi | 7 00 | 8 10 |
| Red Deals: Archangel | 1st quality | 20 10 | 31 10 |
| | 2nd | 16 00 | 17 00 |
| | 3rd | 11 00 | 12 00 |
| " St. Petersburg: | 1st quality | 16 00 | 17 00 |
| | 2nd | 12 00 | 14 10 |
| " Wyburg & Alesburg | | 10 00 | 12 00 |
| " Gefin, Goleburg, | | | |
| " and Stokholm | | 10 00 | 17 00 |
| White Deals: Crown | | 10 00 | 18 00 |
| " Second | | 9 10 | 10 00 |
| " Wlad | | | |
| 1st and 2nd quality mixed | | 0 00 | 8 6 |
| 1st, 2nd and 3rd quality mixed | | 11 00 | 11 30 |
| Red Deals: Crown | | | |
| Pitch Pine: Prins Deals and | | | |
| Boards | | 17 00 | 20 00 |
| Lumber | | 4 10 00 | 13 00 |
| | Per foot super, as lin. | | |
| Yellow Pine Logs (waney board) | | 0 1 00 | 0 1 10 |
| Pitch Pine Logs | | 0 1 00 | 0 1 10 |
| Batch: Quebec Logs | | 0 2 00 | 0 3 00 |
| Cut: Astrakhan, Wamoot | | 0 2 00 | 0 3 00 |
| Malaga | | 0 2 00 | 0 3 00 |

CENTIFUGES AND HARDWOODS.

| | | | | |
|--|------|-----|----|------------------|
| Oak Bark: Burmes., per load (50c. ft.) | £90 | 0 0 | 0 | to £21 10 |
| " Java " | " | 16 | 0 | 0 " 18 0 |
| Oak Planks: U.S.A., imported. | | | | Per cubic foot, |
| " Boards " | | | 5 | 10 0 3 0 |
| " " | Pm. | 0 3 | 4 | 0 " 0 10 |
| " " | Mdm. | 0 3 | 0 | 0 " 0 10 |
| Sesquid (California Redwood) | | 0 3 | 0 | 0 " 0 6 |
| Birch: Quebec logs | | 0 1 | 6 | 0 " 0 2 |
| " " | | 0 1 | 0 | 0 " 0 2 |
| Oak: Anatolian Wainscot | | 0 7 | 0 | 0 " 0 6 |
| Walnut: Prime boards & planks | | 0 6 | 0 | 0 " 0 0 |
| Greenheart: Heavy logs | | 0 3 | 6 | 0 " 0 4 |
| Cedar: Clear box " | | 0 3 | 0 | 0 " 0 0 |
| Best Waincoat: Imp. sawn | | 0 3 | 0 | 0 " 0 0 |
| " prime " | | 0 3 | 3 | 0 " 0 6 |
| Orham: Imp. sawn boards, | | | | |
| " prime " | | 0 1 | 10 | 0 " 0 2 |
| Mahogany: S. St. Domingo, Cuba, | | | | Per foot of lin. |
| and Honduras | | 0 0 | 6 | 4 to 0 0 6 |
| " African, Assinee, etc. | | 0 0 | 6 | 4 to 0 0 6 |
| " Laguez and Benin | | 0 0 | 3 | 4 to 0 0 4 |
| " Sokonadi and Cape | | | | |
| " " | | 0 0 | 2 | 4 to 0 0 3 |
| " Gaboon | | 0 0 | 1 | 4 to 0 0 0 |
| Redwood: West Indian | | 0 0 | 10 | 0 " 0 3 |
| Lignum " | | 0 0 | 10 | 0 " 0 3 |
| Sawnwood: Various Per ton | | 4 | 0 | 0 " 11 10 |
| Railwood " | | 4 | 0 | 0 " 11 10 |

STONE.

| | | | | |
|--|---------------|-------------------|---|---------|
| Dred Mansfield, in blocks | per foot cube | \$0 | 3 | 4 |
| Darby Dale, ditto | " | " | 2 | 3 |
| Red Corshell, ditto | " | " | 0 | 2 |
| Clooseburg Red Preston, ditto | " | " | 0 | 2 |
| Amesbury, ditto | " | " | 0 | 2 |
| Greenish, ditto | " | " | 0 | 110 |
| Chalmar, ditto (in truck at Nine Elms) | " | " | 0 | 110 1/2 |
| Hard York, ditto | " | " | 0 | 110 |
| Ing's, random sizes | per foot emp. | 0 | 8 | 8 |
| Ditto ditto 3 in. slab sawn two sides, random size | " | all F.O.R. London | | |
| Bath Stone, delivered on rail at quarry stations | per foot cube | 0 | 1 | 0 |
| Delivered on road waggon, Paddington | " | " | 0 | 1 1/2 |
| Ditto ditto, Nine Elms Depot | " | " | 0 | 1 1/2 |
| Beer Stone, delivered on rail at Seaton | " | " | 0 | 1 |
| Spaced, ditto, delivered, Nine Elms depot | " | " | 0 | 1 8 |
| Portland Stone, in random blocks of 30 ft. average:- | | | | |
| | Brown | White | | |
| delivered at quarry depot | Whit Bed. | Base Bed. | | |
| Ditto ditto, | per foot cube | \$0 | 1 | 6 1/2 |
| Ditto ditto, | per foot cube | \$0 | 1 | 7 1/2 |

SLATES

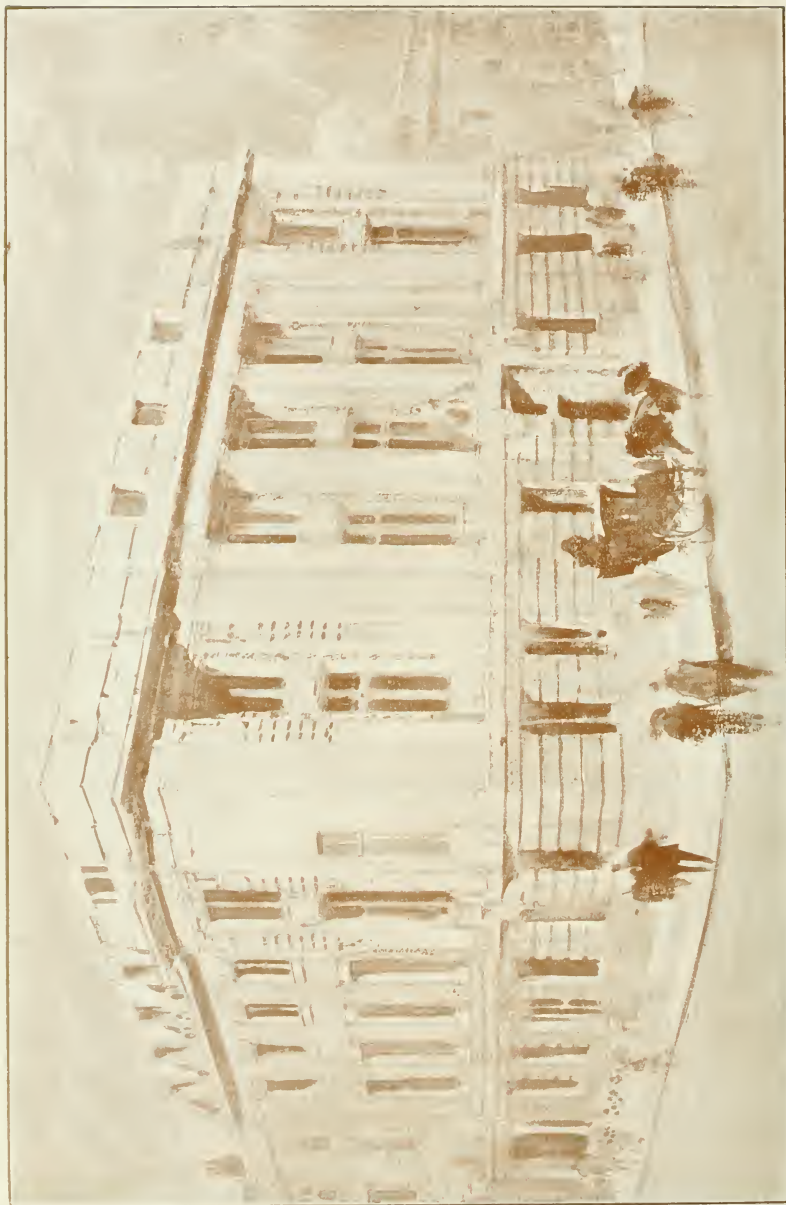
| | In. | L. | E. | d. | | | | | |
|-----------------|-----|----|----|----|--------------------------|----|----|----|----|
| Blue Portznadze | 20 | 10 | 12 | 13 | per 1000 of 1300 st. in. | | | | |
| " " | 16 | 8 | 6 | 12 | 6 | 11 | 11 | 11 | 11 |
| Blue Bangor | 20 | 10 | 13 | 3 | 6 | 11 | 11 | 11 | 11 |
| " " | 20 | 12 | 13 | 17 | 6 | 11 | 11 | 11 | 11 |
| First quality | 20 | 10 | 13 | 0 | 0 | 11 | 11 | 11 | 11 |
| " " | 20 | 12 | 13 | 0 | 0 | 11 | 11 | 11 | 11 |
| " " | 16 | 8 | 7 | 5 | 0 | 11 | 11 | 11 | 11 |
| Eureka unfading | L. | E. | d. | | | | | | |
| green | 20 | 10 | 16 | 17 | 6 | 11 | 11 | 11 | 11 |
| " " | 20 | 13 | 16 | 7 | 6 | 11 | 11 | 11 | 11 |
| " " | 16 | 10 | 13 | 8 | 0 | 11 | 11 | 11 | 11 |
| " " | 16 | 8 | 10 | 8 | 0 | 11 | 11 | 11 | 11 |
| Permanent green | 20 | 10 | 11 | 0 | 0 | 11 | 11 | 11 | 11 |
| " " | 18 | 10 | 9 | 12 | 6 | 11 | 11 | 11 | 11 |
| " " | 16 | 8 | 8 | 6 | 12 | 6 | 11 | 11 | 11 |

BRICKS

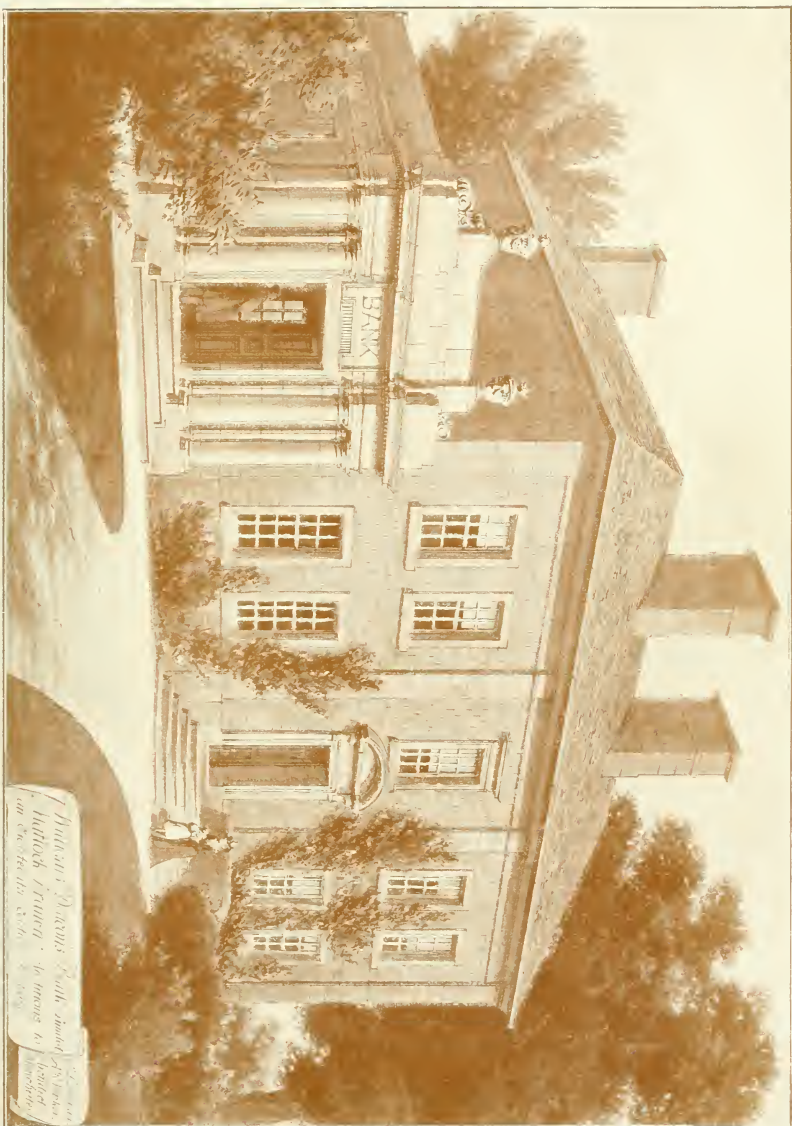
| (All prices net.) | | |
|---|---------|--|
| Hard Stocks | £1 0 | per 1,000 alongside, to river |
| Rough Stocks | 1 0 0 | " " |
| Picked Stocks for | | " delivered |
| Facings | 3 10 0 | " at railway station. |
| Facing Bricks | 1 10 0 | " " |
| Pressed Wire Cuts | 1 14 0 | " " |
| Red Wire Cuts | 3 13 0 | " " |
| Best Face Red | " " | " " |
| Best Red Pressed | " " | " " |
| Rubion Facing..... | " " | " " |
| Best Blue Pressed | 3 10 0 | " " |
| Blanchings | 6 0 0 | " " |
| Ditto Bullnose | 4 0 0 | " " |
| Best Roundbricks | " " | " " |
| Fire Bricks | 3 14 0 | " " |
| 2½" Best Red Ac- | 4 10 6 | " (Net, delivered in full truck loads to London) |
| coring Plastic | | Per 1,000 |
| Facing Bricks | | |
| 3½" Acoring Bricks | £2 10 0 | per 1,000 |
| Ditto Second Best Plastic Facing Bricks | 2 6 0 | " " |
| Ditto Ordinary Second Bricks | 1 11 3 | " " |
| Ditto Plastic Engineering Bricks | 1 17 6 | " " |
| Sewer Pipes | | |
| thickest part | 3 0 0 | " " |
| 3½" Chimney Bricks 2½" for outside work | 2 6 0 | " " |
| Ditto 2½" Bricks 2½" for inside work | 2 6 0 | " " |
| 3½" Beaded, Oroland and Bull Jambes; Octagons; | | |
| 2½" and 1½" radius Bullnoses; Stock patterns | 3 7 6 | " " |
| Acoring Bricks 2½" 2 course deep, each | 0 1 0 | " " |
| Ditto Ditto " 1 course, each | 0 0 3 | " " |
| Acoring Chamber Arches | | |
| 3 course deep, 4½" soffit, per foot opening | 0 1 3 | " " |
| 6 ditto 4½" ditto ditto ditto | 0 1 6 | " " |
| 6 ditto 4½" ditto ditto ditto | 0 2 1 | " " |
| 6 ditto 4½" ditto ditto ditto | 0 2 6 | " " |
| 6 ditto 4½" ditto ditto ditto | 0 3 1 | " " |
| 4 ditto 6" ditto ditto ditto | 0 3 11 | " " |
| 6 ditto 6" ditto ditto ditto | 0 3 9 | " " |
| 6 ditto 6" ditto ditto ditto | 0 4 4 | " " |
| Free on rail, or free on boat at works. | | |

GLAZED BRICKS.*

[illegible]



PREMISES OF THE ROYAL SOCIETY OF MEDICINE, HENRIETTA STREET, W.
Messrs. JOHN BULLCHER, R.A., and J. J. JOASS, Architects.



Butcher's Plaster - To insure a perfect finish in the interior of the building.



THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Emmings House,

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Strand, W.C.

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MEDIEVAL ARCHITECTS: THEIR PLANS AND MODELS.

Very few of the names of the architects of the great Medieval buildings have come down to us, and for the plans of the buildings erected by their genius we may, in almost all cases, look in vain. That these plans, set down before commencing operations (probably on vellum to withstand the wear and tear of constant reference) should have, in course of time, disappeared, is not surprising, though many sheets of paper remain to-day long after the massive walls within which they were written have wholly disappeared. It is, however, a somewhat singular circumstance that so few contemporary references to the plans of Medieval architects are to be met with to-day.

Of the architects of Medieval England, Alan of Walsingham, a monk of the great monastery of Ely, probably stands as one of the few most famous; but, so far as we are aware, no line of, and but few references to, the plans of his great work carried out at Ely Cathedral remain to-day. A collection of the plans and drawings of a Medieval French architect, however, exist, and have been published. These plans and drawings are those of a 13th-century architect of the name of Villard of Honnecourt, and from them we can get a very fair idea of the plans and drawings which must have been also made by Medieval English architects. The original volume, now in the National Library at Paris, has been reproduced in facsimils with explanatory notes by MM. Laisné, Quicherat, and Robert Willis, the English edition by the last named editor being published in 1870. Amongst these reproduced drawings of Villard we find drawings dealing with all sorts of the details of an architect's business.

We see plans of Rhinoceros Cathedral, a windmill at Chartres, the tower of Laon, the east ends of churches, etc. In the English edition an excellent table of the subjects dealt with is supplied. Under "Practical Geometry" we have amongst other instructions: "To cut the mold of a great arch in a small space; to lay out a square (toister; to measure the height of a tower, etc. Under "Carpentry": Framing to restore a falling house; roof for a barrelled chapel; roof for a side aisle, etc. Under "Masurage" we find: "To cut the voussoirs of vaulting surface; to find the centre of a given voussoir; the bond of a pier at Rhinoceros, etc., etc.; from all of which it will be seen that the volume is in no way restricted in its scope.

In addition to the drawings, which there

can be little doubt were at all times forthcoming before commencing building operations, it seems to have been customary for the Medieval architect to have had a model of the proposed edifice constructed before beginning work.

This model must not be confused with the model so often seen in the hands of the figures of patrons of churches. In the case of the patron, the model is intended to convey the idea that he, the patron, was responsible for the original order to build or rebuild, and responsible also for the financial burdens incurred. The architect's model was that constructed for actual practical use in the work of building. Sometimes, however, the architect does carry a model of a church. An instance of this may be seen in the case of the French Medieval architect Librizer, whose tombstone is reproduced in a plate in "Annales Archeologiques" (p. 117, Volume I). An interesting feature of this particular representation lies in the fact that the figure grasps in the left hand a long stick marked apparently as a rule. At the feet a pair of compasses are delineated.

The construction of a model may have had its origin from either one or two circumstances, or by reason of both. In the one case these in authority may have required a model to enable them to obtain a clear idea of the appearance of the projected building, in the second case the model may have been constructed solely to illustrate the directions given by the architect to the builder. We will give two instances of the construction of a model. In the earlier, it is clear that the model or model was to work from; in the second case, it is equally clear that the model was made to enable a better opinion to be formed of the design previously submitted. It is, however, very probable, that architects were frequently entrusted to serve both purposes. The earlier instance, of the making of a model is to be seen in a curious and interesting agreement for work to be done at Westminster Hall. The document will be found in full at page 794 of the seventh volume of Rymer's "Fodera." This agreement, in early French, which we translate is dated 1395, and commences thus:

This Indenture made between our lord the King of one part, and Richard Washburn and Johan Swalebe, masons, of the other part; witnesseth that this said mason have undertaken to make and erect all the tabule of the walls of the great Hall of Westminster Palace, according to the purport of a ferm and indenture made by the counsel of Master Henry Zeneley.

This model was, it is expressly stated, delivered to the masons and livevez as dit

mason") clearly for their assistance in the work undertaken. The second instance to which we have referred, is to be found in Wren's "Parentalia," where we see that the plan of constructing a model before building was adopted in the case of St. Paul's Cathedral. We read at page 282 that "a model in wood" of the church proposed to be erected was required to be made for the satisfaction of those who had expressed themselves as pleased with the designs prepared. Whether models were, however, made for either patron or workman, it is probable that in almost all cases they speedily shared the fate of the drawn plans.

The plans and the model having been approved, the next step of immediate importance to the architect would be the setting out of the ground. To do this would necessitate the use of a line and stakes. The stakes would scarcely find mention in the accounts of a Medieval builder; but the purchase of a line for this part of the work we may at times expect to meet with. Such a purchase we find in the Record Office MS., Exch. Acc. 474-7, where in a list of purchases made by a builder in connection with a particular work, we find a record of the cost of "Lyne for the masons and bricklayers, for measuring and setting out of ground." The next stage as regards the ground plan of the building would be the digging of the foundations, a reference to which operation we find in the Record Office MS. 504-2, where we read of the purchase of "18 shod shovels for the labourers to work with in digging foundations." The purchase of four pickaxes for the labourers, bought, there can be little doubt, for the same purpose, immediately follows.

The architect's work would be now possibly complete. The plans and model would be in the hands of the builder, and his officials and workmen could then proceed to carry out everything as shown in both. But though we have now perhaps arrived at the final stage respecting the preparation of plans for the use of the builder, it is possible that yet another series of minor plans may have been executed. It must be admitted that it is not by any means altogether beyond the region of possibilities, that, as the work went on, one or more of the superior workmen might desire to have at hand a second set of plan, of that part of the building lying within their own immediate province.

This cost, however, of finding a material of sufficiently strong texture upon which the workman could set a copy of the plan required, would probably find him in the use

of vellum, for we know the value of vellum to have been so great in the Middle Ages, that palimpsests of all kinds remain to-day showing the Medieval practice of using the same sheet to record, after a rough cleansing, a wholly new series of drawings or inscription. But the stones for the building and the tools with which to work them were at hand. What, then, would be more likely than that an intelligent workman should have cut the plan which would help him in his work directly upon a stone which had been, or eventually would be, incorporated in the building. A plan so incised would be readily accessible at all times, and being in no sense official, could be consulted without application to those in authority. No such plans, so far as we are aware, have been discovered in this country; but certain plans still existing, which have been cut on some of the stones of Limoges Cathedral, and a description of which will be found in the sixth volume of "Annales Archeologiques" appear to us to afford some measure of support for such a speculation. The writer of the description of the stones at Limoges tells us that they are partially obliterated by the steps of visitors and of the workmen.

We may hazard the suggestion that these drawings at Limoges may have been set down by some skilled workman for his constant personal and unofficial reference, and that such a practice may have been more or less common during the erection of large buildings, both in other countries and in this. Such a theory is by no means beyond the range of possibilities, though proof placing such beyond question is not at present forthcoming.

BRICK ORNAMENT.—VI.

PILASTERS AND PIERS, OR DWARF PILLARS. In these positions there is also the possibility of introducing both the moulded brick—in a species of panelled work—or the other methods previously described. That, too, with a large amount of originality, obtaining

sketches suggest panelling applied in the conventional—orthodox—manner of the customary architectural repetitionist, they

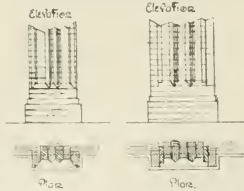


FIG. 2.



FIG. 3.

would doubtless present a better aspect if broken somewhat, after the manner indicated in the succeeding figure, No. 5. The two variations on this figure also suggest the

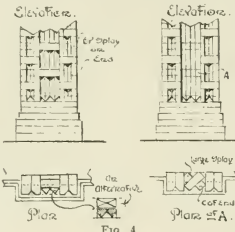


FIG. 4.

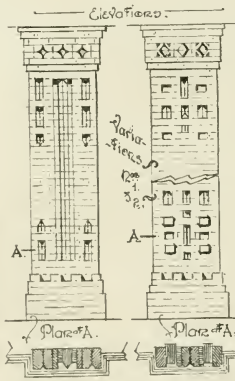


FIG. 5.

quite new effects in design. The simplest methods, and usually the customary ones, adopted with this branch are illustrated in Fig. 1—those of panelling, either in moulded brick or plain work, as shown. In some positions, where it might be desirable to introduce a broad pilaster having a certain amount of decorative effect, without proving too costly, the method illustrated in Fig. 2 could be, and is, sometimes adopted. The pointed bricks, as shown are usually obtainable ready-made, whilst the intermediate straight points in bonding could also be formed in similar manner to that shown on the later figure, No. 4. The system of line and pattern-work adapted to pilasters—is illustrated by two rough sketches in Fig. 3. Many other designs and variations might be introduced to this branch with exceedingly good results in this type of work. Fig. 4 shows a combination of the eplay and pointed coping brick used in a system of raised and sunk panelling. In many cases the bricks might be used on end, with alternate breaking ties either laid herring-bone, or pieced, as shown by the small alternative plan. Although the latter

application of plain sunk and raised work, in a restrained manner. There is really very little more trouble in building a pilaster or pier in the manner indicated by the two

latter figures than in plain, solid brickwork. If we take the little extra labour involved by so doing, mass it, in a more striking feature, better results still are obtained. Thus the introduction of even a few small

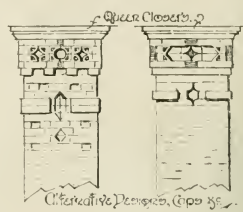


FIG. 6.

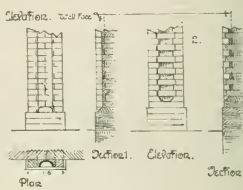


FIG. 7.

cut-out spandrel pieces, in the cavetto, bull-nose, or eplay brick, with the slightest of alternation in colour, pattern, or line, as illustrated by Fig. 6, involves the production of a far better "design." The simplest methods of design have, more often than not, the best results—far more than over-elabora-

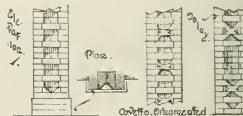


FIG. 8.

tion, which is too often the tendency with the introduction of ornament. Figs. 5 and 6 illustrate the use of the half-brick, presenting the narrow-edge face; a method, although forming merely a slight variation from the 3in. face, is quite enough to prove extremely

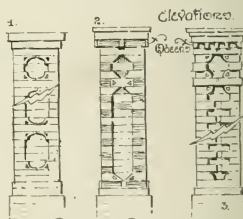


FIG. 9.

valuable in the formation of slightly narrower or fillet courses for positions where they may be desirable. Another rather original method, suitable for rustic work, is illustrated by Fig. 7. The rustications indicated in No. 2 on this figure are slightly set back, so in-

producing a more broken effect. The same system, slightly more elaborated and extended, is shown by the succeeding illustration (Fig. 8).

produced with the moulded brick, giving a good effect, are by its use on the angle, either as a continuous mould or rusticated, as illustrated by the ovolo in Fig. 10. The rusticated

No. 11 shows the cavetto pilaster or pier, with a simple cap, composed of projecting bricks as dentils, and a couple of pointed coping bricks, introducing a little further simple, but pleasing, relief. No. 2 on this figure illustrates the double-filleted splay-

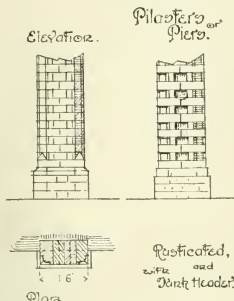


FIG. 10.

tration (Fig. 8), either the splay brick being introduced, as shown by the plan, or the cavetto, by one of the elevations. An occasional cross-brick, having the ends slightly

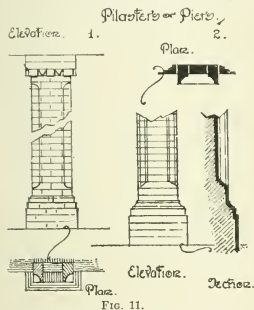


FIG. 11.

carved or cut out with small spandrel pieces, as indicated. Fig. 9, on the same principle, shows the bull-nose or half-round brick, used with panelled rustication. These are merely



FIG. 12.

slight indications of what may be done in this direction, as the sketch designs admit of further improvement if elaborated with other variations carefully worked out. Other types

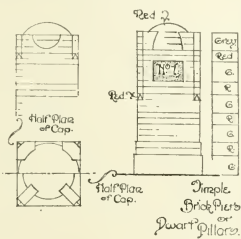


FIG. 13.



FIG. 14.

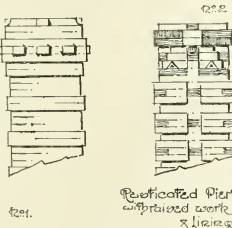


FIG. 15.

example could be admirably adapted to garden work—for instance, pergolas, etc. The cavetto, in like position, gives an equally good effect. The bull-nose, in such a position, proves unsatisfactory, although, if rusticated, it has more effect.



FIG. 16.

brick, also usually obtainable ready-made, and which has a remarkably effective appearance on the angle in this manner. Some very simple designs—but nevertheless highly satisfactory—are to be obtained by somewhat similar methods in the construction of dwarf piers, pillars, etc., as used for angles or gateways. The angle pillar, as illustrated by the rough sketch in Fig. 12, is of a type doubtless

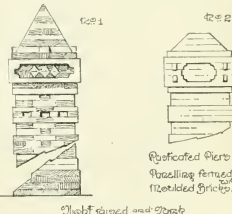


FIG. 17.

well known; nevertheless, for simple work there is quite a fair amount of relief in such a plain brick dentil course. Neither can it be termed such an overworked type as many others. The design for a gateway pillar, illustrated in Fig. 13, with its colour-key, should convey a pretty clear idea of its effect. Constructed in grey grizzles, yellow, or buff stocks, if more convenient, with low tones of red or brown bricks, it would prove very

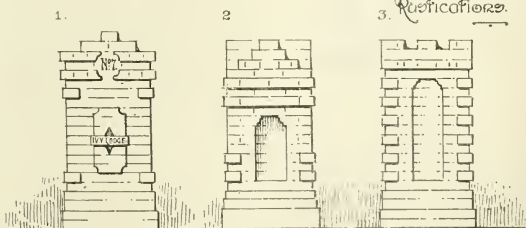


FIG. 18.

In English-Flemish or mixed border.

Pier with Simple Relief in Moulded Bricks.

expensive. With good bricks, particularly the common reds, the result is rather and relatively by more homogeneous and harmonious than is often obtained with brick and stone. As to some of the other schemes would be quite distinctive without proving glaring. The last two designs are, for a fair amount of extra labour in setting and rubbing for the dome, but as they are otherwise exceedingly simple, this would not really prove a large cost. Those illustrated in the succeeding figure (No. 14) are of a very inexpensive type.

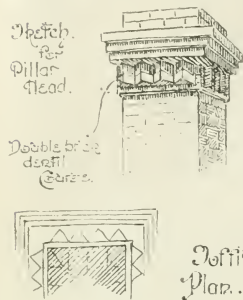


FIG. 19.

There is no necessity to specially cut the adjoining bricks for the pinnets, or even the mitred bricks. If worked at 45deg. these can readily be arranged with splay, whilst the filling can also be largely managed with the latter, too. Simple panning, as shown, can also be arranged without cutting, by the use of properly placed Queen closers. The second design on this illustration would require very little cutting for the semicircular pinnets, that being the only extra expense involved beyond a little figuring, carving in the date panel. They might, of course, be further worked up with colour design as described for the previous illustrations, with a little pattern work introduced.

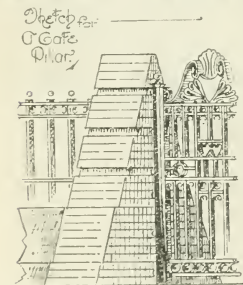


FIG. 20.

These plans rusticated pillars are, of course, well known; but these admit of further improvement, even by the restrained use of only a little raised and sunk work, as shown by No. 1 on Fig. 15 and No. 2 on Fig. 16. Fig. 17 illustrates a couple of simple methods for introducing moulded brick panels, with a note further raised and sunk work, of course, could be considerably simplified. The system of moulded brick paneling also admits the use of far more elaborate and decorative methods, if desired. Smaller panels, massed, etc., might be introduced as well, forming central features. Fig. 18 illustrates some picturesque methods of rustication. To obtain quite a good

broken effect of light and shade it is not essential that the rustication should be cut in steps, as illustrated by Nos. 1 and 2 on this figure.

The first example also indicates another method of using the moulded brick in the cresting course as a small, broken, rusticated panel is formed by the use of the cavetto, which might have a name or a number as shown, either carved or introduced as a small piece of wrought ironwork fitted into the jointing. The corners of the raised panel centre is also formed by the cavetto—the centre sinkings with splay and pointed coping filing. The other two examples are further variations, with the oval brick introduced in the upper corners of the centre panels. Fig. 19 illustrates in a rough sketch the use of the pointed brick or herring-bone coursing, adapted to pier or pillar heads. Fig. 20, a rusticated and battered pillar, illustrates a different type, which might well be occasionally adopted as a relief from so much stereotyped monotony in these respects. Such a pillar need not necessarily be formed of solid brickwork throughout, but might be constructed with 4-in. work on rough concrete or broken-bat filling, etc. It should be recognised that the various designs could be still further elaborated and developed in combination with the various forms of raised, sunk, solid, broken, or massed lines, pattern-work in block, or massed, etc. Slight indications in these directions appear to me the best, as those able to use the various systems with advantage will also be able to readily apply them on a more extensive scale.

WALTER G. KERBY, Architect.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The Minutes of the Royal Institute record that at the Seventy-eighth Annual General Meeting, held on Monday, May 6, there were present Mr. Leonard Stokes, President, in the chair; 22 Fellows (including 5 members of the Council); 35 Associates (including 1 member of the Council); and 1 Licentiate.

The Hon. Secretary having announced the decease of Sir John Taylor, Fellow and Past Vice-President, it was resolved that the regrets of the Institute for the loss of its distinguished member be entered on the Minutes of the Meeting, and that a message of condolence be addressed to his family sympathising with them in their bereavement. The decease was also announced of John Barlow Badock, Fellow, elected 1876; James James Bradshaw, Fellow, elected 1883; Arthur Whitcombe, Associate, elected 1882.

A proposal by the President that a report from the Records Committee, just received (see below), should be included in the Annual Report was put to the meeting and agreed to.

The President having formally presented and moved the adoption of the Annual Report of the Council for the official year, the motion was seconded by Mr. Henry T. Hare, Hon. Secretary.

In the discussion which ensued the following members took part: Messrs Wm. Woodward, F.R.A., W. B. Davidge, A.A., Sydney Parks, F.S.A., F. Herbert Shepherd, A.I., Maurice B. Adams, F.I., Albert W. Moore, F.I., Leonard Pilkington, A.I., J. Douglas Mathews, F.I., C. H. Brindley, F.I., Hampden W. Pratt, F.I., Alan E. Munby, A.I., Herbert A. Satchell, F.I., G. Ernest Nield, F.I., Edward Greenop, A.I., and Percy B. Tubbs, F.I.

On the motion of Mr. W. B. Davidge, the words "to amalgamate the two lists" were inserted at the end of the 5th line of the paragraph headed "Registration."

Further, on the motion of Mr. Davidge, the President agreed that information should be given in the Report as to the application of the Howard Colls bequest of £500, which had been left to be applied at the President's discretion either for educational purposes or for the Architects' Benevolent Society.

In the paragraph relating to the Form of Agreement between Contractors and Sub-

Contractors in the Practice Standing Committee's Report, it was agreed to insert the word "and" in the second line so as to read "a new Form of Agreement."

In the paragraph beginning "This exercise" in the Auditor's Report it was agreed to insert the word "and" in the second line after "1911."

Finally it was resolved that, subject to the amendments indicated, the Annual Report of the Council for the official year 1911-12 be adopted.

On the motion of the President, a vote of thanks was passed to Messrs. John Hudson (F.), and W. H. Burt (A.), for their services as Hon. Auditors, and the same gentlemen were nominated to serve in that capacity for the ensuing year.

THE RECORDS COMMITTEE, R.I.B.A.

In a report just submitted to the Royal Institute of British Architects, the Committee, of which Professor Leithaby is the chairman and Mr. W. Curtis Green the hon. secretary, state that they had not felt it wise to push forward the geographical survey of architectural buildings which they had originally contemplated, as this work has been undertaken by the Royal Commission on Historical Monuments, the first fruits of whose labours have been shown in the publication of their volume on Hertfordshire. The Institute is represented on the Royal Commission by their President, Mr. Leonard Stokes, and it is a matter of satisfaction that the work is being done in such an admirable and complete manner. The Committee has suggested to the Royal Commission that it would add to the usefulness of its publications if the buildings of which accurate drawings are known to exist were indicated, and also if those buildings of which it is desirable, from an architectural point of view, that a survey should be made were recommended to the attention of students. The Committee is glad to notice that the Board of Architectural Education has altered the conditions of the Essay Prize so that a student may in future submit original work of a more interesting character, and that this Committee has constantly pressed for in order that some of the students may be encouraged to survey unexplored fields in architectural record. The Committee suggests that buildings of architectural interest in London whose demolition is contemplated should be scheduled from time to time in the Institute Journal, and recommended to students for measuring up. This Committee is now concerned with the compilation of a list of hotels recommended by students on their return from travel; a list of buildings suitable for students to measure; the record of country building methods; the recording of smaller works of architectural interest likely to be destroyed.

THE R.I.B.A. ANNUAL ELECTIONS.

FULL LIST OF NOMINATIONS.

The following is the full list of nominations for the annual election of Council and committees for the ensuing session of the Royal Institute of British Architects, including the "bare" list of those subsequently nominated. The last day for returning the voting papers is Saturday, June 1, and the result will be announced at the business meeting on Monday, June 10.

NOMINATIONS FOR COUNCIL.

President: *Reginald Blomfield, A.R.A., M.A., F.S.A., Vice-President.

Vice-Presidents (four seats, six nominations): *Walter Cave, Alfred William Stephens, Cross, *Edward Guy Duerbe, *George Hubbard, F.S.A., *Ernest Newton, A.R.A., *John William Simpson.

Hon. Secretary: *Henry Thomas Hare. Members of Council (eighteen seats, thirty-six candidates): Maurice Bingham Adams, William Henry Atkins Berry, Cecil Claude Brewer, Arthur William Brewin, *Max Clarke, Thomas Edwin Cooper, Henry Dyer Berke, *Dwight, *William Dunn, Robert Evans, Frederick Richard Farrow, Banister Flight Fletcher, *William Flockhart, William

Adam Forsyth, *James Siverwright Gibson (past Vice-President), *William Curtis Green, *Edwin Thomas Hall (past Vice-President), *George Hubbard, F.S.A., *Arthur Keen, *Henry Vaughan Lancaster, William Richard Lettaby, *John Brightmore Mitchell-Withers, Charles Stanley Leach, Sydney Perks, F.S.A., Samuel Perkins, *Percy Pick, *George Halford Fellows Prynce, Charles Henry Bonnes Quennell, Edwin Alfred Rickards, Walter John Tapper, *Sir Alfred Brumwell Thomas, Edward Prioleau Warren, F.S.A., William Henry White, Herbert Wigglesworth, *Edmund Walter Wimperis, *Edgar Wood, *William Woodward, *Percy Scott Worthington, M.A.

Associate Members of Council (six seats, fourteen nominations): Robert Atkinson, George Leonard Elkington, Kensington Gammell, *Sydney Kiffin Greenslade, Edwin Gunn, Stanley Hinge Hamp, Frederick Robert Hiorne, Alan Edward Munby, Cyril Wontner Smith, Digby Lewis Solomon, *Harry Inigo Triggs, William Henry Ward, M.A., *Septimus Warwick, *Arthur Needham Wilson.

Past Presidents (two seats): Sir Ernest George, A.R.A., *Leonard Stokes (now President).

Representatives of Allied Societies (nine seats): John Brooke (Manchester Society of Architects), William Milburn (Northern Architectural Association), Alexander Nisbet Paterson, M.A. (Glasgow Institute of Architects), Arthur Cline (Aberdeen Society of Architects), Charles Edward Bateman (Birmingham Architectural Association), Ernest Richard Eckett Grayson (Nottingham Architectural Society), the President of the Edinburgh Architectural Association, *John Alfred Gotch, F.S.A. (Northampton Association of Architects).

Representative of the London Architectural Association: *Gerald Calcott Horsley.

NOMINATIONS FOR THE STANDING COMMITTEES.

Art Committee.—Fellows (ten seats, sixteen nominations): Arthur Thomas Epton, *Cecil Claude Brewer, Edward Guy Dawber, *Henry Philip Burke Downing, *William Flockhart, Henry Thomas Hare, *Gerald Calcott Horsley, *Thomas Geoffrey Lucas, *Ernest Newton, A.R.A., *Edwin Alfred Rickards, John William Simpson, *Henry Heathcote Statham, *Walter John Tapper, Francis William Troup, *Sir James Webb, C.B., C.V.O., R.C.A., *Edgar Wood, Associates (six seats, seven nominations): Ormarod Maxwell Ayrton, Matthew James Dawson, Charles Lovett Gill, *Sidney Kiffin Greenslade, *John James Joass, *Septimus Warwick, *Arthur Needham Wilson.

Literature Committee.—Fellows (ten seats, fifteen nominations): *David Theodore Fyfe, *John Alfred Gotch, F.S.A., *William Curtis Green, *Arthur Rutherford Jemmett, *David Barclay Innes, *George Halford Fellows Prynce, Professor Frederick James Mackenzie, Richard Phene Spiers, F.S.A., *Charles Sydney Spooner, *Andrew Thomas Taylor, R.C.A., *Sir Alfred Brumwell Thomas, Charles Harrison Townsend, *Edward Prioleau Warren, F.S.A., Paul Waterhouse, M.A., *Percy Leslie Waterhouse, M.A. Associates (six seats, nine nominations): Frederick Robert Hiorne, William Bonner Hopkins, Walter Millard, Herbert Passmore, *Charles Henry Bonnes Quennell, *Cecil Wontner Smith, *Arthur James Stratton, William Henry Ward, M.A., *Herbert Winkler Wells.

Practice Committee.—Fellows (ten seats, twenty-one nominations): *Robert Stephen Ayling, *Walter Cave, *Howard Chatfield Clarke, Max Clarke, *Alfred William Stephens Cross, *Matt. Garbutt, George Hubbard, F.S.A., *John Hudson, *Frederick William Marks, *John Brightmore Mitchell-Withers, Henry Percival Monkton, *Albert Walter Moore, George Ernest Nield, *Charles Stanley Perks, *Sydney Perks, F.S.A., *Herbert Arnold Satchell, *Herbert Duncan Searies Wood, Alfred Saxon Snell, *Henry

Tanner, jun., William Henry White, *William Woodward, Associates (six seats, nine nominations): Horace William Cubitt, *Kensington Gammell, Edward Greenop, Percival William Hawkins, *John Nixon Horsfield, *Charles Edward Hutchinson, *Herbert Hardwicke Langston, *Herbert Shepherd, *Harold Arthur Woodington.

Science Committee.—Fellows (ten seats, ten nominations): *Harry Ford Adams, *Ernest Robert Barrow, William Edward Vernon Crompton, Bernard John Dicksee, John Dunn, Frederic Richard Farrow, *Ernest Flint, Horace Gilbert, George Hornblower, *Ravenscourt Elsey Smith. Associates (six seats, ten nominations): Robert John Angel, William Robert Davidge, A.M.C.E., *George Leonard Elkington, *James Ernest Franck, *Alan Edward Munby, M.A., *Henry Albert Sainsbury, Lewis Solomon, B.Sc., *Ernest William Malpas Wonnacott, *Ernest Alexander Young.

A star prefixed to a name denotes proposed re-election; a dagger signifies change of office.

ENGLAND'S LATEST PORT.

The new deep-water dock at Immingham was opened for traffic on Wednesday, May 15. This Eastern gateway to industrial England will have a great influence upon trade between England and the Continent.

The attractions which will bring shipping to Immingham are:—First, the saving of time and money in coaling; secondly, the rapid movement of equipment for loading and unloading cargo direct from ship to ship, unsurpassed for speed and economy; and thirdly, the very short and cheap rail haulage to the great and small industrial centres, and to the most densely populated sections of England.

The sister port of Grimsby has more traffic than it can handle. Hull, fifteen miles up the river, must depend upon the tide. Immingham is only a few miles above Grimsby, and is independent of all tides. A vessel can round Spurn Head, steam direct to the Immingham jetties, at any state of the tide, and immediately her hawsers are fast can be taking bunker coal at the rate of 500 tons per hour; or at any stage of the tide the great dock can be entered. This is true of no other port on the East Coast. No towing expenses are necessary. Pilotage and conservancy dues are lower than at any competitive dock on the Humber. Taken all together, the charges to shipowners and to shippers are so low that Immingham can compete successfully with any other port in England. Already some of the most carefully-managed firms are beginning to secure positions for factories and works midway between the coalfields and the dock.

The facts which give Immingham Dock its great importance are its storm-protected harbour, its deep-water channel, its proximity to the great coalfields, and its cheap, quick, well-organised railway connections with all industrial towns, large and small, throughout England.

Coal, timber, and produce will, naturally, be the four most important commodities which will pass through Immingham Dock, and in each of these departments the most rapid and economical of modern systems have been installed for loading and unloading. No matter how great the traffic may be, the enormous accommodation for trucks, prompt shunting, and quick making up of trains make the slightest delay impossible. The tracks throughout the dock property are operated by the latest and most approved electric power signalling apparatus. Telephone communication will link the dock instantly with any of the great or small industrial and business centres throughout England.

The company has had long and successful experience in dock management, and its docks at Grimsby have raised that port to a condition of great prosperity. There will be nothing experimental, therefore, even in the slightest detail of the construction or operation of the new dock. So Immingham will have the advantage of a management which has proved by many years of success, and will

be free of the disadvantages attached to old or out-of-date equipment or methods.

On the Humber, leading to the dock gates, are two jetties. At the western coaling jetty vessels can coal without entering the docks, taking from a hoist that can load 500 tons per hour, and which has capacity for 320 loaded waggon on the siding that feeds it. The eastern jetty is for passengers and express traffic. Between them is an expanse of still water, in which vessels approaching the dock gates are protected from the side sweep of the current.

Guided by the jetties, vessels approach the dock gates. The entrance locks are 240ft. long and 90ft. wide. At high water there is 4ft. on the sill, 2ft. 6in. at low water, 30ft. to 35ft. within the docks.

The central basin is 1,000ft. square. Each of the two arms of the basin is 1,250ft. long and 375ft. wide. Two of these basins are completed, and two will be made when extensions are necessary. In all, exclusive of locks, there will be 45 acres of water in the dock.

There will be one mile of dock wall for shipping, and 170 miles of railway within the dock property. The whole of the back of the dock basin is used for coaling, and as coal export is the foundation of Immingham's maritime advantages, the utmost care has been devoted to perfecting devices which will save every possible minute and every fraction of a farthing in the cost of handling the coal. Seven great hydraulic hoists, operating almost automatically, are ranged along the quay. One of them is movable, so that coal can be shot into two holds of a vessel at the same time, to avoid breakage of coal, which injures its value, every hoist has a system of radial extension shoots which slide the coal into the hold of a vessel. The coal need not be dropped more than a foot or two.

The facilities are so complete and perfect that the loading of coal can go on, day and night, with the ceaseless regularity of clockwork. The loaded coal waggon runs on a hoist by gravity, the hoist lifts the loaded wagon, and its coal is carefully tipped out of the end or from the hopper-bottom into the vessel. The wagon is placed on a higher track, and goes by gravity to the tracks where the "empties" are made up into trains. The seven coal-hoists are capable of shipping at the rate of 5,000 tons per hour. Each of the seven sidings has eight gravity sidings of its own, with 320 loaded waggon, or 3,200 tons, waiting for loading. Back of these gravity sidings are the great train-yards, used solely for loaded coal-trains, and another great yard used solely for empty coal-waggons. Empty trains leave the yards without getting in the way of loaded trains. The dock storage facilities will accommodate 174,000 tons of coal.

There is also a graving-dock, 740ft. long and 50ft. wide. The dock has its own power plant for hydraulic power and electricity. Strong hydraulic capstans are placed at close intervals along all the quays. The dock property is 2½ miles long with a river frontage of 1½ miles. Among the numerous valuable sites for factories and works that are still available in the vicinity of the dock are several fronting on the Humber, so that factories by building a jetty can load and unload their own boats.

"BUILDING NEWS" DESIGNING CLUB.

AN ARTIST'S COTTAGE, WITH A STUDIO.

The genius loci of Southwold is not exactly embodied in any of the schemes received for the Artist's Cottage as specified for the April subject, the site for this holiday home being presumably on the eastern coast, a few miles inland—say at Walswerick, which is a favourite hunting-ground for artists. Of course, the lead thus afforded to the competitors can only be dealt with by an assessment in a tentative manner, because everybody belonging to our Club—numbering, as it does, members all over England—may not happen to be acquainted with the

district referred to. Nevertheless, it is expected that well-informed architectural students should make themselves familiar with historic building work in various localities, particularly those where old traditional methods obtained, and were so locally distinguished as happened in East Anglia for centuries.

The designs which we have chosen are:—"Why Not," first; "Five Towns," second; and "Burghwallis," third. The following is a copy of the Conditions set for use of the competitors:—"An Artist's Cottage, including a Studio, intended as a holiday home, near Southold, on the eastern coast, the site being a few miles inland. The plot is level, and the aspect is south-east; but the studio must have a north light. The accommodation to comprise a good entrance hall and a family living-room, 18ft. by 16ft., or of that area; a studio, 25ft. by 17ft.; a good working kitchen, 12ft. by 10ft. 6in.; scullery, larder, and offices. Also a cycle shed. Upstairs there are to be five bedrooms, a bathroom, and w.c. The studio will serve as a "drawing-room." The style must be adapted to brick and tile, with wooden sashes and bars, painted white. The detail to be simple and suitable, breadth of treatment being intended. Two or three plans, two elevations, one section, and a view. Scale of the geometrical drawings to be 8ft. to the inch.

"Why Not" sends distinctly the best scheme. The gable to the entrance front is typical of the kind of building stipulated, and the plan is, on the whole, quite admirable. The double-tipped mansard roof of the studio does not harmonise nicely, however, with the half-timbered part over the entrance-door, and the break with the valley between the studio roof and that of the main building has not enough projection to sufficiently justify any break at all. The effect would have been so very much better, because more simple, had

"Why Not" run the lower slope of the studio roof right through and stopped it by a simple projecting gable, over the kitchen offices. This would have added a pent all along as a sort of verandah, instead of the wooden hood suspended over the entrance. The landing and bedroom windows might then have been treated as a dormer, for one would have been less rest than two. We should have preferred the studio fireplace being located in the section, instead of the wall, and a pretty feature could have been readily invented outside by combining the dormers with the chimney, instead of placing it at the east end as at present. No doubt the little windows, however, as seen in the section, would look nice enough. One fireplace at the end of so capacious a room, probably, would be unequal to the task of warming the other end of the studio; and besides, the section fireplace could have been made a good feature at the end of the vista from the hall as seen when the sliding doors were open. Had not this design been so interesting, we should have not ventured upon these various suggestions. The neat manner in which the w.c.'s are put out of immediate sight is commendable, and the general conception of the plan is capital. The scheme is modern, without loss of interest or quaintness, also avoiding any sacrifice of utility. Considering the position of the service hatch, the dining-room door, perhaps, might have been hung the other way on, or even it could have opened into the hall. The yard well encloses the back premises; but perhaps the kitchen, facing south, would get very hot in the summer, and, besides this objection, the window commands the lawn. One cannot have everything, and we do not wish to be hypercritical, though these points are worth remembering, and may be useful to others who read this review besides "Why Not."

"Five Towns" might never have heard of Southold in so far as any local influence in his design is concerned. His plan has few of the merits of that placed first; but the number which allow on leave us little chance of placing him second. The layout

of his plan, which starts on the assumption of a sea view to the south-east, is disfigured by a canted bay to insure a north light; but no attempt is made to get greater height for the studio. Small water-colour pictures, of course, hardly effect this requirement; but in a holiday home a painter often needs accommodation for bigger work. We did not preclude this idea in our Conditions, which made no pretence at fixing up every detail; otherwise nothing would be left for the imagination or enterprise of the Club members. The big door into the studio to the verandah indicates some presumption on the part of "Five Towns" that large canvases might have to go in and out. Why the similar big door to the living-room should be also provided we cannot say. We are not shown which way these doors are to open; but either way they would be awkward. The poky hole sort of little lavatory looks bothersome and awkward, too, for all going to the convenience beyond. The stairs rather get in the way of the front door, and the kitchen door is too near the portal, intruding cooking smells on callers. The landing is wasteful of space, and the w.c. is too much in evidence. The drawings are good; but the windows creep in especially all over the place, particularly on the entrance side, where the stink-pipe makes a bisecting line up the gable in an ungainly fashion.

"Burghwallis" sends a quaint proposal, worked out in a way which merits recognition, and we do this gladly, because he has persistently tried to score so long. By saying this we by no means say that he is free from fault; but few non-competitors can claim that standard, in spite of all their assumed cleverness. It might be an easy task to pull such a plan as this to pieces, but we refrain from attempting the effort, though such cracks as the too-prominent w.c., with its V-shaped seat, in the angle or the stairway running almost on to the front entrance, cannot be overlooked. The flues and the fireplaces also look very pimply. The west elevation is a pretence, and the entrance approach is unpretentious, picturesque, and pleasing.

"Black Diamond" (device) is rather successful, presenting several good points—so good, in fact, are they that we can acknowledge having had some difficulty in deciding his claims for third place. The hall, however, is larger than its contrivance justifies, being really treated too much as a passage-way, and is not suitable for comfortable use as a sitting space, particularly with the big draughtily well-hole over it. The dormer above furnishes its only means of lighting. The landing is not economical enough for so small a dwelling. "The porch" hardly justifies the term, and the stairs would run through the right-hand window and the fanlight over the door. The studio answers more to the arrangement of a drawing room, with no direct north light. The w.c. off the main landing is not screened at all; the same remark also applies to the h.m.s. The end of the verandah, seen on the side, is not at all pleasing, and the exterior is cut up too much.

"Ne'er-do-Well" also treats his elevations in a restless manner, making the house too much like a villa with odd parts of the roofs disconnected, and further disturbed in effect by promiscuous chimneys, cropping up everywhere. The hall is very happy, and as if by chance. The hall is a little more of the verandah, seen on the side, is not at all pleasing, and the exterior is cut up too much.

"Liver's" cottage is oddly contrived, and outside it looks uncommon enough to be thought singular. A half-eye window, next the front door to the cloakroom, lights that part of the hall, with an angle window in the verandah, which is a pair of awkward bedrooms set above it in the roof. The general result is cottage-like, and, therefore, so far is commendable, even if as a house it is too queer to be comfortable or effective.

"Veritas," also quite out of the ordinary, is by no means usefully suggestive. A V-shaped alcove, fitted with a seat of that pattern, has

a lofty look, finished with a pent, and a clock occurs over, the effect being too important as contrasted with the little, squeezed-down doorway to the entrance, dodged in as it is under a long line of roof. The plan may not be lacking in ingenuity, but it makes a poor example of house arrangement.

"Lima" affects a plain Georgian treatment which is not well adapted to an Artist's Cottage, with a very awkward kitchen also spoiling the shape of the hall, which, by an oversight, has no screen to the doorway so necessary on an open site for such an apartment intended for sitting in. The studio is merely a drawing-room, with no direct or proper window to the north. The perspective is indifferently delineated.

"Nota Bene's" roughcast house is laid out after the manner of "Burghwallis's" plan, but it is not nearly so satisfactory. The studio has ugly posts in it to carry a wall above, and the internal economy of the building is very inconsequential and crudely managed. The sheet of paper used is not according to the rules.

"Longhanks" is neat, but devoid of an appreciation of the quiet reserve so essential to cottage design. He prefers depending on detail, with a mixture of brick, timber, and tile-hanging dodged about, lacking rhyme and reason. The semicircular arcade for the broken-up and angled verandah is most incongruous.

"Jorvic" aims too high, with side pavilions flanking his sort of Queen Anne house, garnished by statuary in front, quite out of accord with the little scheme we provided for. He has spared no pains, nevertheless, and has drawn some details which are not particularly happy. His plan is a poor one, the odd-set studio ill becoming so palatial a piece of building like this. "Jorvic" ought to have done much better, his initial fault being the cause of his failure, having failed to grasp the costume of the cottage.

"Little Willie" sends a rambling plan, lacking in interest, besides not being effectively drawn. We can scarcely criticise such a proposal.

"Cheer Up" depresses one by the inane inaptitude of his strange ideas concerning an artist's needs. The fat statue at the turn of the main staircase is typical of his ingenuity, and the accidental way in which the parts of the plan tumble together make a very poor result, though labour has been lavished ungrudgingly on the drawings.

"Mak" would have ranked higher had his work been finished, the view being blocked in only. The elevations are better than the plans.

The view submitted by "Ardeleigh" has a cramped-up appearance, very out of accord with the elevation. The studio has good large windows, and extends into the first floor. Compactness of plan has led the author to adopt several bad expedients.

"Scot" gives us a pitch-dark central hall in a square plan, set diagonally, with one corner cut up on one angle so as to form an entrance, the general result being very indifferent, and externally the design is poor.

"Windmill" fills half his sheet of paper with an inkly sort of view, backed by badly-drawn trees. The elevations are worked out in thick lines, though in themselves the fronts are rather good. The first-floor plan is indifferent as compared with the ground plan.

The remaining designs are by "City," "Jupiter," "Yokel," and "Sirrah."

The Legislative Council of Jamaica have decided to undertake the sanitation of the whole island. The work will probably occupy several years, and about £250,000 annually can be spent on it. The expenditure on other public works was this year about £200,000.

The Corporation of Glasgow have organised a smoke abatement exhibition to be held from September 20 to October 12 in buildings in New City-road. The Corporation are appealing specially to the public to exhibit their various waste appliances for the abolition of smoke, and there will be many exhibits of smokeless fuels, patent appliances for boilers, and gas-heated furnaces.

[illegible]

MEDALS

The models exhibited have been chosen from the period beginning with Pannofino's founder of the art (see Nos. 15, 44, and 63), and ending about 1850. Pannofino's work examples are shown in Nos. 3, 4 and 31. His chief pupil, Paul is represented by the rare lead of Christ and the soldier (rarest point of view of Sig. no. 1) and the lead of the Virgin Mary (Malabar and No. 4 of Rimini No. 7). For the marble is shown in the first part of the 17th century (No. 10) two portraits of Muhammad II, the two of Ferrara and Bertoldo (Cassio No. 18, 19, contrast with a 19th century work).

PLAQUETTES.

The plaques here exhibited have mostly been selected because they are believed to be unique or are known to be very rare, or, in the case of better-known types, because of exceptional beauty of design or execution. In the epoch when they were produced in great numbers, plaquettes, besides serving as a means of disseminating favourite designs for use in the workshops of sculptors, a use to which the sculptors' clients put them, the Catholic Church used them to adorn the doorway of a church, as it was in the Louvre, are well-known illustrations were themselves employed for many purposes. They were worked into caskets and inkstands, used as paxes, portelli, or little doors for the tabernacle containing the Host, and hat medallions, or set in sword handles and horse trappings. The small rectangular plaquettes in the present collection (Nos. 5, 7, and 8) illustrate types designed for the use of paxes. No. 9 is a small example of a pax; Nos. 6, 31 and 52 are typical of the class of hat medallions; and No. 20 represents the class of plaquettes which are found set in the pommels of swords. The most prolific maker of plaquettes was a Paduan artist who used the signature O. Moderni. Although about ten only of his types are signed, their strongly-marked style has made it possible to add with some certainty about sixty others to the number of his work. O. Moderni, who was essentially a craftsman in bronze, Moderni, as he is now usually called) seems to have been a goldsmith. Moderni's work is illustrated by seven examples: two especially (Nos. 17 and 18) show the range of his modelling on a fairly large and on a microscopically small scale. Another excellent Paduan artist, who signs with the initials L. F. F., is represented here by only one specimen (No. 22). Unlike Ricciardi, No. 30, believed to be unique. Plaquettes were not presumably required in sufficiently large numbers to make it worth while to engrave dies for striking them. A rare example of a struck plaquette by Vittore Camello is included (No. 35). As the practice of casting from the wax model had ground, another process for producing plaquettes came into fashion; this was by casting from engraved gems—often "intaglios"—into plaster or wax. The two former specimens, the counters of the period were Valerio Belli, Gastel Visentino, and Giovanni Bernardi di Castel Bolognese. Fine examples of original work in crystal by both of them are to be seen among the gems lent by the Duke of Devonshire (Case 1). The most famous works of the former are the plaques composing the casket of Pope Clement VII. in the Uffizi Gallery, at Florence. Records exist of the gift of the casket to the Duke of Devonshire by the Duke of Devonshire, and the casket is in the Naples Museum, and from one of which is shown. No. 43).

A small but very interesting collection of wax models, gems, etc., adds value to this attractive exhibition, the catalogue of which any reader really unable to visit it should not fail to secure. It is full of interesting

matter, and prompts the wish that similar knowledge and judgment may some day inspire the preparation of similar guides to exhibitions of far greater pretence—notably those of the National Gallery and the Royal Academy.

BRICK AND PUBLICITY.

In his address before the National Brick Manufacturers' Association at Chicago, in March last, the Hon. John B. Rose, of New York, the principal speaker, took occasion to say in part:—

Since that time we first heard of little Johnny Jones we have learned that advertising pays, and yet like Rip Van Winkle, who slept in the day-covered hills of the beautiful Hudson, we rest, calmly facing the fact that slowly, irresistibly, a new material has been driving us out of the market, and that this inferior substitute has been taking the place once so firmly held by us. It is because we know the value of the material we manufacture that we believe it is time we should raise aloft our standard, and, under the leadership, charge the titubates of our enemy back back this defeated, straggling, disorganised army, and turning a rout into a victory, rally round the standard, "back to brick."

PUBLICITY THE ONLY WAY

Publicity is the only thing which will meet present-day conditions. We know that we have a material which is the best. Why not let the world know it? Millions of dollars are spent yearly in advertising destructible products, while we have thought so little of our product that we have hesitated to make known its good qualities. We have been suffering from a cancerous disease. The publicity of cement and the increasing use thereof has been slowly eating away our manufacturing bodies.

Do you know that concrete construction is not indestructible? Do you know that it is not inexpensive construction? Do you know that, except in small, cheap, and criminally unsafe structures, concrete buildings cannot be built as quickly as construction with steel? Is there about concrete construction which has given rise to such an impetus throughout the country? Why do you see a vast amount of concrete construction in many towns throughout our states, if it is not cheaper, if it is not indestructible, if it is not fireproof, if it takes longer to build than a house of brick, if it is criminal to use it? Why has it been going up by the day? Why has the cry, "Concrete is King," been taken up?

There is only one answer—publicity. A liberal use of printers' ink. And think what an opportunity we have. Here are concrete dams giving away, concrete buildings falling down, concrete bridges caving in, and all around us, on all sides, life and property destroyed, because of the criminal use of concrete. And what use have we made, as an industry, of this ammunition which has been placed in our hands?

Of what use, do you think, would the concrete interests have made of such ammunition? If through the use of an inferior quality of brick one house should fall, it would be flashed from one end of the country to the other, and the world would have been terrorised into the use of concrete.

Cement is king! Yes, in the same sense that "Dolo," a well-advertised comic opera, leads away from the people of the play. Think of it! A king of concrete, which, heated by the fires of our attack, would crack, and when the flood of newspaper criticism is turned on it, would disintegrate and fall to pieces as a useless waste. Why, concrete, instead of being king, is only a deuce snut in the deck, with all the tricks of the knave.

CONCRETE NOT INDESTRUCTIBLE.

I have said that concrete is not indestructible. What of brick? Why, one of the chief complaints of the manufacturers has been that when buildings are wrecked in the city and whole blocks raised to give place to greater improvement, the old bricks—i.e., second-hand bricks—are immediately placed on the market in competition with the new.

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a more or less disorganised body. I do not propose to enter into the sordid side of the position, though we must all admit that it exists, and must exist, in any section of society that leaves the field open to the unrestricted operations of the professional charlatan. Until that control is secured, all we can do is to inculc into the public mind the fact that they are being deceived by incapable and irresponsible people, and furthermore to expose any abuses that may present themselves, especially when their perpetration is calculated to affect the honour of our profession and the interests of the public.

COMPETITIONS COME TO STAY.

It seems to me a waste of time to enter into the question of the wisdom or otherwise of having architectural competitions. They have become an established fact, and, I believe, have come to stay. The arguments in favour of them when applied to designs for large public buildings, or where public money is involved, seem to me such an easy way out of a difficulty that members of our public bodies can hardly be blamed for favouring the system, if only as a means of escape from the importunities of a certain class of architects, who have probably approached them with a view to securing the work. Such persons would, of course, resent being charged with unprofessional conduct, but it is just such tactics that render the work of our professional bodies all the more difficult.

I submit, however, that it is so far satisfactory to find that the same individual members of those public bodies take a different view when their own untrammelled interests are at stake. In their hearts they are suspicious of the competitive system, where professional ability and integrity is in the balance with their own material interests. As intelligent business men, they prefer to save time and to place their interests in the hands of men they can trust. And there, I feel, we must leave it, and endeavour to make the best of a necessary evil by exerting our influence through our representative institutions, towards securing honourable and fair treatment as a precedent to giving of our best to the public.

ARCHITECTURAL ABORTIONS.

My experience of the world has convinced me that right will in due course prevail; the ordinary layman is not a fool, though he is often misled by interested parties. He will, however, discover his mistake, and then our day begins. In my travels up country I have often wondered how a community could submit to the awful architectural abortions called, by courtesy, 'buildings,' that they have paid the most extravagant prices for. But inquiry soon proved that, being untravelling, simple folk, they did not know good from bad, drew from fair cost, or the difference between a qualified architect and one who is only so in name. They do not know what architecture, honest construction, or economy in designs means, and thus become the victims of the charlatan. I fear the next generation will not be proud of what has been left them by their fathers. When our Registration Act is passed the Provincial or District Committees provided for will be in more intimate touch with the country than our existing centralised institutions can possibly be.

I do not think it worth while to go into the details and politics of the competitive system. We all know them. The point is to make them known to the public from end to end of the Union, and to do that means notices for printing and circulating literature everywhere. Less talking with more material success in the subject and a loyal combination to wreck every competition that is not founded upon fair conditions is the only means of stamping out the evil. How to govern the charlatan and the tout from oversteering the honest practitioner by intrigue and subterfuge is the problem we have to solve, and the first step is to secure the control of all persons who call themselves architects. It is a duty we owe to our clients and to the public, and, judging from the

course pursued by Government since Union regarding their architectural work, there can be little doubt as to what they have been induced to think of architectural competitions.

LIMITS OF FAIR COMPETITION.

Perhaps it may be as well if I briefly record the leading points that the profession seem to have fixed as being the irreducible limits of a fair competition; fair to the competitors and fair to the promoters. In the first place, it is, I think, generally admitted that the process is a very slow one and quite impossible if time is of any consideration; that any but the direct single system is too expensive and too protracted for all concerned; that absolute and inviolable anonymity is essential; that one or more professional assessors of the highest standing should be engaged and have absolutely free hands in drawing up the conditions of competition in consultation with the promoters; that the award of the assessor should be accepted and honoured by the promoters and the competitors; and that the author of the premiated design should be engaged to carry out the work upon the usual terms, unless the assessors should give good reasons for his being associated with a second party or for terminating the contract when payment of the agreed premium is made. That, in case the promoters decide for some unforeseen reason to abandon or indefinitely postpone the execution of the work, the author of the accepted design should be paid a commission of 1 1/2 per cent. upon the amount of his estimate, and be guaranteed employment to carry out his design when it is proceeded with; that the award of the assessor be divulged to each competitor, and all the designs be exhibited, unless a competitor wishes his to be withdrawn; that the name of the assessor should be divulged in the conditions of competition; that nothing original in any of the unsuccessful designs should be made use of without the consent or remuneration of the author of such design; that all the premia offered shall be paid within a reasonable period upon the certificate of the assessor; that the total of all premia offered should represent at least 1 1/2 per cent. upon the estimated outlay, and that the condition be accepted by all parties as a binding contract; that the rules and regulations of the Royal Institute of British Architects should be recognised by all parties as binding upon them; that any fee or deposit that may be demanded by the promoters for the conditions should be returned to the payer if he declines to compete and returns the conditions within one month of receiving them.

DUTIES OF ASSESSOR.

The duties of the assessor should be as follows:

1. To draft the conditions or terms of contract between promoters and competitors in consultation with the promoters, and to decide with them what amounts should be given as premia to competitors.

2. To fix a time and place for the delivery of drawings, etc.

3. To prepare all necessary information regarding the site, such as levels, aspect, surroundings, geological features, water supply, etc.

4. To ascertain the accommodation required by the promoters, and to schedule same giving approximately the floor area and minimum heights of rooms or departments where possible.

5. To ascertain by rough sketches or otherwise the approximate cost of the work, or, as an alternative, to give approximately the cubic contents of such a building as that required.

6. To decide the number and description of drawings required, the scale to which they must be drawn, and how to be finished and mounted.

7. To limit the number of designs that any competitor may submit.

8. To decide how the absolute anonymity of competitors shall be secured.

9. To decide and state any reasons that

will place the work of any competitor out of the competition.

10. To receive from and reply simultaneously to any questions submitted by competitors, and to circulate both questions and replies to all registered competitors. To fix a date after which no question will be considered.

11. To arrange how competitors' designs are to be received and marked, and to be present when the names of competitors are ascertained.

12. To see that each competitor is informed of the result of the competition, and to arrange for the safe return and delivery of the drawings, etc., submitted by the authors.

13. To assist the promoter and successful architect, if necessary, in arriving at a fair and proper agreement for the completion of his duties.

The foregoing appear to me to be the leading features to be observed in a fair and reliable competition, and I submit that it is quite impossible for any committee of laymen to do themselves justice unless they consult and support a professional assessor. This is our strongest point, and it is for the profession, individually and collectively, to combine and insist upon its observance by the promoters of competitions, or as an alternative to decline to compete, and thus in time bring home to promoters that they are acting against their own interests.

TOWN PLANNING.

The sub-committee appointed by this Institute to assist and advise the Cape Peninsula Publicity Association has done all that has been required of it, and the municipal authorities do not seem to appreciate the value of our Council's advice regarding the artistic possibilities of the foreshore and public gardens. We can only watch the trend of public opinion until the unification of Cape Town and the suburbs is an accomplished fact, and then take steps to make our influence felt. We must, when the right time comes, press home the fact that mere building construction and sanitation can be superseeded under Statutory Acts and Regulations by engineering departments and their building inspectors; but the highest architectural, hygienic, and artistic advice is required in problems of collective architecture, street planning, and subdivision of estates before they are sold, and the maintenance and restoration of old buildings that possess any antiquarian or architectural interest. The Government of India, and the City of Vancouver have both learnt the necessity of consulting eminent architects and engineers regarding the comprehensive planning of the new capital of India at Delhi and the park and street system of Vancouver respectively.

NATIONAL ART GALLERY.

It will be remembered that last September a deputation of artists, architects, and citizens interested in the establishment of a National Gallery of Art, waited upon the City Council and asked the assistance of that body in the movement. As representing the artists, Mr. Crosland Robinson stated that his profession wished to work in unity with our Institute and other kindred art societies, and suggested that as the gallery would only be wanted for two months in the year for art exhibition purposes, it would be available for the exhibition of the applied arts and architectural works during the rest of the year.

Since then, I understand, the South African Society of Artists have been busy on their own account; but the co-operation of their Institute has not been solicited. At the exhibition of architectural works held under the auspices of our Institute, three days before the above-named meeting, in asking his Worship the Mayor (Sir Frederick Smith) to open our exhibition, I ventured to suggest that we wanted something more than an art gallery, and proposed that an atheneum would provide a home for science as well as art. There are many institutions in our midst which have no domicile, amongst them

being the Cape Institute of Architects, the South African Society of Artists, the South African Drawing Club, the Sketching Club, the Photographic Society, the South African Association for the Advancement of Science, the Royal Society of South Africa, the Cape Society of Engineers, and the Royal Sanitary Institute. A museum, reference library, reading-rooms, lecture-hall, and laboratories could, and should, be combined with any art-gallery scheme that the public is asked to support. We, of course, do not wish to hamper the Society of Artists in any way; but I think we all feel that scientific and technical culture can do so much to encourage pure art that they should not be pushed aside in the endeavour to secure a home, but rather be encouraged to co-operate.

HISTORY OF THE MOVEMENT.

The history of the movement for the acquisition of a Gallery of Fine Arts dates as far back as 1871, when the South African Fine Arts Association was formed in Cape-town for the purpose of founding an art gallery. Sir Henry Barkly, then Governor, was the first President, and Mr. John Fairbairn, senior, was the secretary. In 1881 the Cape Colonial Government granted £100, which was later increased to £200, per annum until about 1905, when it was reduced to £80. In 1895 a Board of Trustees was appointed by Government, and they took over the property of the Association. The site of the old gallery in Queen Victoria-street was purchased by Government, and £6,000 was the agreed purchase price; but it has not been paid over. The Government, however, promised to build a new gallery, and in the meantime the new museum was built, and four rooms in it placed at the disposal of the Association. I understand the Union Government has now voted £500 per annum for the maintenance of the gallery and purchase of works of art.

The South African Drawing Club was founded by her Excellency Lady Smythe in or about 1887, and has been active ever since. It is, of course, purely an amateur society, but has cultivated a public appreciation of art, and, without public or Government aid, has encouraged and produced artists, some of whom are well known here and in England.

The present South African Society of Artists was started, I believe, in 1904, and is now engaged, as I have before remarked, in trying to revise the scheme of the trustees, of which, I believe, Sir Frederick Smith, Dr. Muir, and Mr. Westhouse were appointed by Government, and Judge Sedgwick and Mr. Sidney Cowper by the Fine Arts Association.

Doubtless there are good reasons for the somewhat state of the trustees for sixteen years; but we should like to be let into the secret, and join hands with those who are at work to get something done.

REGISTRATION ACT.

We must all feel disappointed at the little progress made with our Registration Act; but it has been quite unavoidable, for even had we three other provincial institutions come to terms, it would have been impossible to get a private Bill introduced at this session of the Union Parliament, on account of the pressure of Government business. As matters stand now, it appears that the South African branch of the Society of Architects (London) is not satisfied with certain clauses in the draft Act, and, in deference to their opinions, your Council asked them definitely to submit the alterations which they desire. These reached us on January 30, and copies have been sent to all other interested bodies for their opinions. As two out of the three are centred in Johannesburg, we hope the advantages of personal discussion will produce a speedy settlement. The Natal Institution seems to be more in unison with our ideas; but I feel that it would be most unwise to "force the pace," and perhaps have a disinterested party to our compact. I hope to arrange another conference of practising architects when the draft Bill has been finally approved. There is over £100 in the bank here to the credit of Registration Act account.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

We are all awaiting with interest the announcement of the amalgamation of the Royal Institute and the Society of Architects (London). An honorary secretary to the latter Institute in South Africa, I am glad to see that the Union and Rhodesian membership is steadily on the increase. The present roll shows 21 Fellows, 28 Associates, and 34 Licentiates. The Council are now arranging for a rebate of subscriptions due by members of allied bodies to the Institute. As far back as December, 1910, I advised the Institute to authorise the establishment of a branch in South Africa; but no notice has been taken of the suggestion.

THE BRITISH ENGINEERS' ASSOCIATION.

The British Engineers' Association is a new organisation formed for promoting and protecting the interests of British manufacturing engineers abroad, and especially in China. To that country its immediate attention will be exclusively devoted. After several preliminary meetings and discussions, twenty-two leading British engineering firms in September last decided to take the initiative in organising the Association. These firms were—Messrs. W. L. Abbott, Son, and Co., Ltd.; Callender's Cable and Construction Co., Ltd.; T. Cooke and Sons, Ltd.; Dick, Kerr, and Co., Ltd.; George Fletcher and Co., Ltd.; Fraser and Chalmers, Ltd.; W. T. Glover and Co., Ltd.; Hadfield's Steel Foundry Co., Ltd.; Hayward-Tyler and Co., Ltd.; Heenan and Foule, Ltd.; Alfred Herbert, Ltd.; Holman Brothers, Ltd.; Marshall, Sons, and Co., Ltd.; Mather and Platt, Ltd.; Midland Railway Carriage and Wagon Co., Ltd.; Power Gas Corporation, Ltd.; Ransomes and Rapier, Ltd.; Stewart and Lloyd, Ltd.; John I. Thornycroft and Co., Ltd.; Vickers, Ltd.; Willans and Robinson, Ltd.; Edward Wood and Co., Ltd.

The above firms found the funds necessary for the preliminary expenses, including those of the incorporation of the association, and from among their directors was formed a powerful provisional committee to carry on the work of the association until its incorporation. In the meantime a number of other well-known firms were elected, bringing the total number of members of the association at the present day up to sixty-one. A complete list of the members, who joined before incorporation is printed at the end hereof. The Association was formally incorporated on April 26, 1912, under a license from the Board of Trade, and is now carried on under the Companies Consolidation Act, 1908. Consequently the liability of its members is strictly limited.

THE OBJECTS, CONSTITUTION, AND FUNDS OF THE ASSOCIATION.

The objects for which the association is established are:—

- (1) To promote and protect the general interests of British manufacturing engineers.
- (2) To consider all questions connected with such interests.
- (3) To promote or oppose legislation and other measures affecting such interests.
- (4) To collect and circulate statistics and other information affecting the general interests of British engineers, and to diffuse amongst its members information on all matters affecting such interests.
- (5) To support the British Government, bankers, fleet, and other technical schools, and any company, and any other organisations in promoting the general interests of British manufacturing engineers.
- (6) To watch and report upon the methods and progress of foreign competitors in Asiatic and other markets, and to suggest methods of countering foreign influences.
- (7) To encourage the predominance of British technical instructors in Asiatic and other schools.
- (8) To encourage technical colleges and schools in Great Britain to give facilities for Oriental and other students, and to establish, or aid in the establishment, of technical schools abroad for the furtherance of the objects of this association.
- (9) To aid by advice, co-operation, donations, or otherwise, any individual or concern who is able to promote the objects of this association.
- (10) To invite members of the association to give facilities for the introduction into their works for various periods of Oriental and other engineers or engineering students.

(11) To endeavour to make the English language the recognised medium for the transaction of all engineering business.

The articles of association provide that this association shall be governed by a council consisting of a president, five vice-presidents, and not less than fifteen or more than thirty ordinary members of council, elected annually from all the members of the association. The annual subscription for the time being has been fixed at ten guineas, which it is estimated will provide the funds necessary to enable the association to carry on its work efficiently.

Candidates for admission as members must be approved by the council and must be bona-fide British manufacturers of articles accessory to engineering plant other than those whose interests in foreign manufactures or otherwise might be antagonistic to the objects of the association, and must be individuals or incorporated bodies.

THE VALUE OF CHINA AS A MARKET.

For some years, in spite of the powerful reactionary influences which existed in China until the Revolution of last year, the progress in that country, and, consequently, the demand for engineering plant, has been growing with extreme rapidity. Without going into details, it is well to state the fact that, while Japan, usually reckoned as the most rapidly progressive country in the world, took thirty years to build 3,000 miles of railway, China has, during the last twelve years, built no less than 5,000 miles.

Naturally, Chinese imports all round have increased very rapidly. During 1910, which was the last complete year of China under the old régime, they stood at £62,300,000, a rise of more than £12,000,000 over the previous year, and £15,000,000 more than Japan's imports for the same period, though in Japan, too, 1910 was a record. Chinese engineering imports during 1910—that is to say, goods which would fall within the range of firms who are eligible for membership of this association—were about £8,000,000. Of this total the British share may be put approximately at rather over 40 per cent. China, however, is merely at the beginning of her career as an importer of machinery. With ten times the population of Japan, and perhaps a hundred times the natural resources of that country, and possessing a people in whom the business instinct is ingrained, there is no doubt that under the new régime, whatever form that may take, machinery requirements will undoubtedly expand, for Chinese will be able for the first time to give free vent to their progressive tendencies. From this it is reasonable to suppose that China will become one of the greatest overseas markets for engineering plant.

A COMPARISON BETWEEN CHINA AND JAPAN.

China to-day, so far as her knowledge of engineering is concerned, is very much in the condition of Japan some thirty-five years ago; but the position of the British engineer in China is by no means as strong as it was in Japan at that period. In dealing with Japan in the early days, British engineers had an immense advantage over their competitors. This was due to two causes: (1) Japan selected and paid for her own advisers and instructors, and financed her own industrial enterprises. (2) She selected, as far as engineering was concerned, British advisers and instructors in nearly every case. Thus the early Japanese engineers were not only thoroughly imbued with a predilection for British plant, but their engineering education was all absorbed on British lines. The intimacy between the Japanese student and the British professor not only accentuated that leaning towards British products in the early days, but its influence has continued even to this day, though the Japanese now consider that they are no longer in need of European assistance. In China matters stand on quite a different footing. There are some eight nationalities vying with each other in lending money to China or industrial enterprises, and clamouring for industrial concessions. Out of these countries Great Britain is the only one who does not couple with her financial

CURRENTE CALAMO.

The debate at the meeting of the London County Council on Tuesday, on the alleged delay in the progress with the work of the Council's new building, was marked by criticism aimed apparently at the administrative capacity of the party in power. It is a pity statements with such little foundation were made. It will be remembered that about July, 1906, the County Council ordered a competition for their new hall, and we believe the assessors reported their decision somewhere about February, 1908, the successful architect being Mr. Ralph Knott, a young man whose experience in such large works must necessarily have been limited. The Council, therefore, took the wise precaution that Mr. W. E. Riley, their official architect, should have discretionary powers relating to matters of internal economy, building construction, and stability, this being a structure apparently exempted from the Building Acts. In April, 1908, the Council prepared a revised schedule of accommodation, and instructed their committee to proceed with the preparations for constructing a building to provide for it. In April, 1909, amended designs for the elevation were considered by the Council and approved, and it had been understood previously to this that the work would not be completed until 1918.

In all similar large buildings which have preceded the County Hall, many modifications have from time to time had to be made on the original competition plans, and this is only the ordinary course of events in connection with such large undertakings. Indeed, we have some recollection of the assessors (Mr. Norman Shaw, Sir Aston Webb, with Mr. W. E. Riley) making suggestions for improvements in the elevation of the building in the early part of last year. The raft foundation and retaining walls were carried out by the Council's own architect, and we have watched the progress of this herculean task with considerable interest. That certainly has been done without loss of time. From inquiries we have made we find that the working drawings for the substructure have just been completed, and these for the superstructure are to be done some time during the present year, and the whole of the building, it is anticipated, will be completed in 1916. This will give a period of less than four years for the construction of a building of great magnitude, which does not appear to us at all excessive, judged by the time standard of monumental buildings which have been erected in recent years, such as the South Kensington Museum, the War Office, the Local Government Board, and the Admiralty buildings.

On Tuesday the London County Council by a huge majority declined to permit the South Eastern Railway to fix a 60ft. advertisement on one of its railway bridges in Southwark, on the ground that these huge advertisements disfigured the streets. This is the first time the Council has taken action, so one hopes no more of the railway bridges which span the London streets will be thus transformed into eyesores. Railway street bridges are unsightly enough without advertisements. Ludgate Hill, where the vista of St. Paul's is spoiled, is a case in point. Tuesday's decision is late, but it will be

hailed with delight by those who value the dignity of London more than the glaring placards of the beer-lords and the soap-makers.

We print elsewhere to-day part of a recent address of the Hon. John B. Rose, of New York, to the Chicago brickmakers, which some of our own brickmakers would do well to ponder. The British brickmaker and his brother the stone-merchant have here surrendered—not exactly at discretion—to their rivals, who know what publicity means, and it is time they awoke to the fact. We ourselves are just now showing what can be done with brick in a practical fashion which brickmakers generally ought to have seconded for all they were worth; but they have not, and are apparently contented to let the public forget their existence. It is time a "Back to Brick" campaign was started here, to teach people to recognise the claims of clay products to superiority in so many instances as materials of construction.

The last report of the London County Council reveals that some of the motor-bus people have gone to the Board of Trade suggesting that street congestion is really caused by the trams, and proposing that 30 or 50 per cent. of the trams should be taken off the streets during the middle of the day, from ten till four o'clock. The Board of Trade has sent the motor manifesto to the Council for "observations," and the Council's Highways Committee, while admitting that the trams are not crowded during the middle hours of the day, quotes figures to prove that motor-buses proportionately are less full. As to congestion, it is shown that without trams there would have to be thousands of buses, when the congestion would necessarily be worse. The Council, moreover, points out that the trams benefit the ratepayers. They pay £118,000 a year towards road maintenance, and they also pay £104,000 a year in rates. They have paid £453,000 in road improvements, and are to pay £350,000 more. The motor-buses do none of these things. They tear the roads to pieces and help the crawling motor-cabs to block the streets. The latter are the worst offenders; Londoners have not forgotten how free of obstruction the streets were during the recent cab strike. Moreover, the trams carry workmen at cheap fares, while the motor-buses do not.

Shall we have a competition before very long for the new Irish Parliament buildings? And will the successful architect be a member of either of the Houses? The architect of the old Parliament House in College Green, Dublin, now the Bank of Ireland, Sir Edward Lovett Pearce, whose plan was approved and carried out, was a captain in a cavalry regiment, and member for Ratoath, in the County of Meath.

Mr. E. G. Pretynan, the President of the Land Union, announces another important decision given on May 9 by Mr. J. M. Clark, the Referee in the Newcastle Test Case, where Increment Duty was claimed upon the profit made by Mr. Lumsden, a builder, upon the sale of a shop which he had erected upon land he was developing at Newcastle. This case is being fought on Mr. Lumsden's behalf by the Land Union, and the Referee has decided that no duty is payable, and has given costs against the Commissioners, who, we understand, propose to carry the case to

appeal. Mr. Masterman has told us our remedy is in the courts of law; but the officials of the Valuation Department, whose duty it is to administer this impossible Act, and who, through no fault of their own, are placed in the unfortunate position of losing every case they take into court, must be tiring of the litigation the farrago of absurdities embodied in Part I. of the Finance Act, 1909-10, entails.

Why is the Bi-hop of Lincoln down on town clerks? There can be no professional grudge, because his great predecessor St. Paul was eminently indebted to the peace-making capabilities of one at Ephesus, if the story in Acts xix. is true. Anyhow, according to the London correspondent of the *Manchester Guardian*, preaching in London this week the Bishop of Lincoln said: "Years ago I knew two towns with separate municipal government, but for all practical purposes the same. They had each organised for itself a splendid system of electric trams. Each was jealous and independent of the other. They would not combine their systems or run over each other's lines. To the population this jealousy was an hourly nuisance. Travellers had to dismount in all weathers and walk a distance to a tram on the other system. Conferences were arranged, but in vain. The town clerks could not fix up an equitable arrangement. At last one of the mayors, who happened to be a personal friend of the other mayor, invited him to lunch. He said: 'Bring your tramway manager with you, but do not bring your town clerk, nor shall I bring mine.' 'You see,' the bishop went on, 'the town clerk is a standing army. His business is with fighting.' In two short interviews the matter was arranged, and the two town clerks were told to draw up in legal form the arrangement come to, and not to put up any fight against it, and that arrangement to my knowledge has worked happily ever since." "I wonder," adds the *Manchester Guardian* correspondent, "how many of my Manchester readers will be able to guess the two towns."

In an interview with "P. W. W." in the *Daily News* last Monday, Mr. Lloyd George struck bottom, for once, in really practical fashion. "We must," he said, "clear out the slum—whether in city or village or mining urban district. We cannot tolerate the slum any longer. And if, from any source, capital is found for housing, it will mean just the demand for labour which will be best calculated to level up wages in the village. Once this is effected, the figure for wages will not fall again." We are not prepared to guarantee all Mr. Lloyd George's deductions; but we have said more than once lately that nothing could more surely help our own great group of industries—the second greatest in the kingdom—and more immediately benefit every other class—workman, slop-keeper, merchant, and craftsman—than the prompt and vigorous encouragement of the provision of better houses, and the improvement of our cities and villages. The builder brings value wherever he leaves his mark. There are some industries of greater pretence than only dissipate it.

The ownership and operation by the State of the railway system of this country has now reached the stage in which it is no longer regarded as chimerical, and the time is ripe for active work by a society devoted to the

spread of the idea and its accomplishment. Previous efforts to co-ordinate such a society have not been successful; but the recent railway strike, the growing demands of organised labour, and the repression of the coal-miners' strike on the railwaymen are all factors likely at any moment to bring the whole railway question into the foreground. It has therefore been decided to make a vigorous attempt to constitute a live society, with the purpose of forming public opinion on this important subject. The chairman is Mr. Emil Davies, and the secretary Mr. F. W. Galton. The offices are at Trafalgar Buildings, Charing Cross, London, W.C. Sir John Gorst is on the council. We wish the society all success.

"Most Britons have a greater interest in morals than in architecture, or, indeed, any form of art," remarks a writer in the *Leds Mercury* of Tuesday last, in his prefatory sentences to a column of inquiry, "Is Paris Immoral?" The rest of his article will interest all the moral Britons who are going over to Paris for Whitsuntide, and want a fairly faithful guide to the attractions of Montmartre, which the moral Britisher only permits himself to visit just to know what wickedness is, that he may resist temptation! No architects are likely to take risks of the sort, or their ecclesiastical sympathies would lead them to "Le Ciel et l'Enfer," a little room designed to resemble a church, fitted with pews, pulpits, and an organ. The waiters wear ecclesiastical garb, and have a flow of ecclesiastical language. You are given a ticket for heaven; you go upstairs, armed with this, and see some lady member of the audience transformed, by clever limelight manipulation, into the semblance of an angel. The other place is a bit warmer; but the language, though "not quite the kind one hears in church," is, after all, no doubt appropriate. The writer assures us "there is not a word which has not been said before, with greater recklessness and force, by Voltaire in France, Swinburne in England, Wilhelm Busch in Germany, to mention only three amongst scores."

Mr. Hall Caine, who got into the sixties last Tuesday, will receive the hearty congratulations of some of our older readers, who still remember his contributions to our own pages in the days when architecture still monopolised the genius that was destined to find wider scope in the field of fiction, and whose activities are still manifold. May they still be as beneficial to the world for many years as those recorded so well in his autobiography, published in 1908.

The St. Austell Board of Guardians adopted at their meeting plans prepared by their architect, Mr. B. C. Andrew, for enlarging the workhouse infirmary at an estimated outlay of £2,900.

The second annual convention of the Architectural League of the Pacific Coast was held in Los Angeles April 10 and 11. The officers of the Pacific Coast League of Architects for the coming year are F. A. Rosenheim, president; E. F. Lawrence, vice-president; John P. Kreppl, secretary; W. R. B. Wilcox, treasurer.

A number of ancient painted stelæ of remarkable size and beauty have just been discovered in the course of the excavations conducted on the site of the ancient Pagase, near Volo. The stelæ were built into the walls of later fortresses erected by the Macedonian king Perseus, and their colours have thus been preserved. More than 100 of these specimens of ancient pictorial art are now in the museum at Volo, forming a unique and most interesting collection.

ARCHITECTURAL IRONWORK.

The too infrequent use of really beautiful and durable architectural ironwork is somewhat of a reproach to us as a nation. One reason, perhaps, may be that several enterprising makers, who a generation ago made their existence known by the prosecution of some excellent work, have either ceased to exist, or have subsided into comparative obscurity. Another, perhaps, that our climate—rather, our atmosphere—is inimical, if proper precautions are not taken, to the durability of external ironwork.

Anyhow, we are glad to see that Messrs. Parnall and Sons, Ltd., of Narrow Weir Street, Bristol, are bidding for work on lines that should appeal to every architect. We have studied their four catalogues, just to hand, of Wrought Iron Porches, Balcony Balustrades, Fountains and Night Signs, and Window Illuminations with interest, and heartily congratulate them on the artistic instincts and genuine workmanship of the designs illustrated.

We strongly recommend architects to get these catalogues, and to respond to Messrs. Parnall's modest plea for thought for beauty as well as strength. We are sure no client will begrudge reasonable payment for good work of this sort, especially where artificers of the stamp of smiths, who can do it to such good purpose, can so well suggest a little latitude in execution which sometimes really makes for beauty and lessens cost.

COMPETITIONS.

BELFAST. At the last meeting of the city council it was reported that an advisory art committee had been appointed to consider matters in connection with the art gallery and museum, and an assessor had also been selected to assist the corporation in the selecting of a design for the new building, the erection of which would cost about £2,000. Councillor W. J. Gilliland, F.R.I.B.A., asked that the matter of the selection of an assessor in connection with the new art gallery and museum should be taken back for further consideration, and this was agreed to.

ST. ANNE'S-ON-THE-SEA.—In August last, fourteen architects were invited, in limited competition, to submit designs for a proposed cottage hospital as a memorial to King Edward VII., offering three premiums, of £20, £10, and £5, "for the three best designs sent in." Mr. F. Overmann, of King Street, Manchester, being appointed assessor. After seven months, the competitors have now been informed that "they are strongly advised none of the designs can be carried out for the sum named, £2,500," and that "therefore they do not see their way to make an award to any of the competitors." Our opinion, after reading the Conditions, is that the committee should have known from the first they asked too much for the money, and that the withholding of the premium is high-handed.

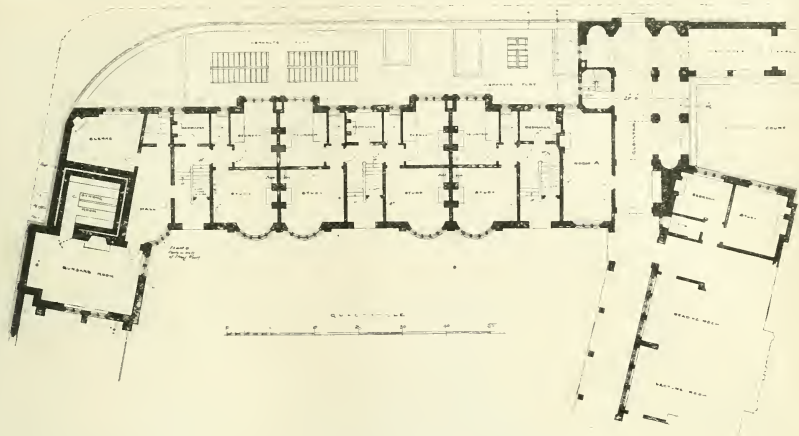
YORK.—Knivesmire Council Public Elementary School.—A public exhibition of twenty-nine of the designs selected by the assessors, Messrs. T. Mellard Reade and Sons, from the 203 submitted in competition for the above-named school, is to be held in the South Galleries of the Exhibition Building, York, from Friday, May 17, to Friday, May 31, between the hours of 10 a.m. and 5 p.m. The assessors made a first selection of twenty-nine designs by the following twenty-nine architects:—Mr. A. S. Prior, 101, Park-road, Kingston-hill, Surrey (6); Mr. E. R. Barrow, Lennox House, Norfolk-street, Strand, W.C. (8); Mr. R. Henton, 19, Newhall-street, Birmingham (10); Messrs. E. Harper and Brother, 191, Corporation-street, Birmingham (23); Messrs. Wright and Hamlyn, Sankey-street Chambers, Warrington (34); Mr. H. H. Brown, 20, Brazenos-street, Manchester (37); Messrs. Cheers and Smith, 24, Richmond-terrace, Blackburn (40); Messrs. Lovegrove and Slim, 109, Villard-road, Handsworth, Birmingham (44); Mr. A. T. Butler, 1, Priory-street, Dudley (47); Mr. J. A. O. Allen, 25, Union-terrace, Aberdeen (61); Messrs. Brown and Maw,

5, Coney-street, York (65); Mr. Edwin Cooper, 12, Gray's Inn-square, W.C. (70); Messrs. Shaw and Vowles, 35, St. James-street, Burnley (89); Messrs. Fowler Jones and Munby, Lendal, York (91); Mr. E. W. Benson, 10, Regent-street, Barnsley (94); Messrs. Clark and Moscrop, 10, Albion-terrace, Middlesbrough (117); Mr. J. H. Morton, N.E. Bank Chambers, South Shields (118); Mr. J. T. Proffitt, Central Buildings, Memorial-road, Walkden, near Manchester (142); Mr. H. Lord, 42, Deansgate, Manchester (151); Mr. A. T. Greenwood, 1, Westbourne-range, Gorton, Manchester (154); Messrs. Wills and Anderson, 24, Bloomsbury-square, London (163); Messrs. Ashdale, Topham, and Ashdale, Leinster Chambers, 4, St. Ann's-square, Manchester (166); Messrs. Willink and Thicknesse, 14, Castle-street, Liverpool (189); Mr. J. P. Osborne, 95, Colmore-row, Birmingham (168); Mr. G. Sedger, 26, Great James-street, Bedford-row, W.C. (170); Mr. W. H. Knowles, 25, Collingwood-street, Newcastle (173); Mr. W. H. Ashford, Educational Chambers, 90, New-street, Birmingham (177); Messrs. R. R. Howarth and Sons, Birmingham (180); Messrs. H. Wall and Son, 26, Paradise-street, Birmingham (191). From these a second selection was made of eleven designs by the following:—Mr. E. R. Barrow, Lennox House, Norfolk-street, Strand, W.C. (8); Mr. R. Henton, 19, Newhall-street, Birmingham (16); Messrs. E. Harper and Brother, 191, Corporation-street, Birmingham (23); Messrs. Wright and Hamlyn, Sankey-street Chambers, Warrington (34); Messrs. Cheers and Smith, 24, Richmond-terrace, Blackburn (40); Mr. J. A. O. Allen, 25, Union-terrace, Aberdeen (61); Mr. Edwin Cooper, 12, Gray's Inn-square, W.C. (70); Mr. E. W. Dyson, 10, Regent-street, Barnsley (94); Mr. J. T. Proffitt, Central Buildings, Memorial-road, Walkden, near Manchester (142); Mr. A. T. Greenwood, 1, Westbourne-range, Gorton, Manchester (154); Messrs. Willink and Thicknesse, 14, Castle-street, Liverpool (189). A final selection was made of the following:—(1) Mr. J. T. Proffitt, Central Buildings, Memorial-road, Walkden, near Manchester (142); (2) Mr. E. R. Barrow, Lennox House, Norfolk-street, Strand, W.C. (8); (3) Mr. J. A. O. Allen, 25, Union-terrace, Aberdeen (61); (4) Messrs. Wright and Hamlyn, Sankey-street Chambers, Warrington (34). In the end the assessors expressed their opinion that the most suitable design for adoption was No. 142, by Mr. J. T. Proffitt, and they place No. 8 as second in order of merit, No. 61 third, and No. 34 fourth. They remark that they find the cube of design No. 142 more than the figure given by the author in his report; but we find it to be about 21 per cent. less than No. 8, and slightly less even than No. 61, which latter has the advantage in cubing of being a two-story building, and should have less superficial area for foundations and roof. They are of opinion that economy will have to be exercised to keep the building within the limits of cost imposed in the Conditions. We briefly announced the result of this competition in our issue of April 26.

Our Illustrations.

TOP FARM, WILLERSEY, WORCESTERSHIRE.

Top Farm, Willersey, is of special interest to all those who know the old style of building in the Cotswolds. It consists of an ancient manor-house, long known as Pigs' Close, which has now been taken down and recreated with considerable additions, including music and dining rooms, and a kitchen, as shown by the accompanying view and plan. The new work has been built with stone obtained from some old barns close at hand, and the roofs covered with stone tiles from the same old buildings. The old oak posts and beams from the barns were used, as far as possible, in the new house. The contractors were Messrs. Oakley, of Winchcombe, Gloucester, a local firm who have a good knowledge of the old traditions of building in the



SIDNEY SUSSEX COLLEGE, CAMBRIDGE.

Cotswolds. The drawing is by Mr. A. N. Prentice, F.R.I.B.A., the architect, and it is included in this year's Academy Exhibition.

[We published a set of measured drawings, comprising plans, elevations, and details of the old Manor House, as contributed to the BUILDING NEWS by Mr. William T. Benslyn, and at the same time (September 15, 1911) a view of the building was given from the pen of Mr. W. J. Roberts, M.A., A.R.I.B.A., who likewise gave a detail of the staircase bay.]

NEW WING, SIDNEY SUSSEX COLLEGE, CAMBRIDGE.

This building completes the third side of a quadrangle facing Sidney-street, the other two sides of which are formed by existing buildings. In general lines the design follows the north-eastern side of the quadrangle, designed by the late John L. Pearson, R.A., and carried out in 1890. Accommodation for the bursar and his staff and four suites for Fellows are provided, in addition to the rooms for Undergraduates, the basement being occupied by baths and lavatories for the use

of the whole college. The materials are red brick, with stone dressings and tile roof, and all floors are of fire-resisting construction. The drawing here reproduced gives a view from Jesus-lane, and is exhibited at the Royal Academy. The architect is Mr. Frank L. Pearson, of 12, Mansfield-street, London, W.

CHURCH HALL, NEW BRIGHTON.

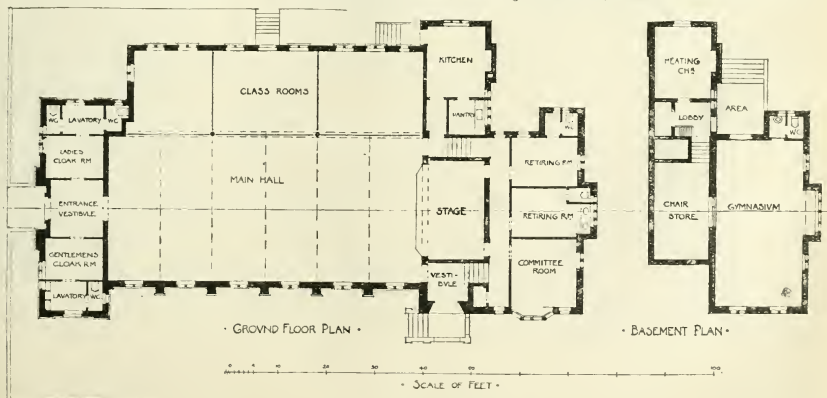
This building, which is now in course of construction, is situated at New Brighton, immediately opposite St. James's Church, with which it is connected. It is being built out of funds left by the late Mr. Frederic North for this purpose. The walls are faced with 2in. mixed red bricks from Basingstoke, and similar moulded brick dressings, relieved with stone gable copings, and the stonework around the west entrance and oriel window on the south side. The roof is covered with grey slates from North Lancashire. The window jambs and mullions are of stone, with moulded brick jambs, heads, and sills around them on the outside, and are glazed

with leaded lights and iron casements. Internally, the hall is arranged with three classrooms on the north side, which are divided from it and from each other with sliding glazed screens, so that the whole may be used as one hall when desired. Underneath the retiring-rooms behind the stage, a gymnasium for boys is arranged. The builders are Messrs. Jones and Sons, of Liverpool, and the architect is Mr. E. Guy Dawber, F.R.I.B.A., of London. The drawing is exhibited at the Royal Academy.

AN ARTIST'S COTTAGE. WITH A STUDIO.

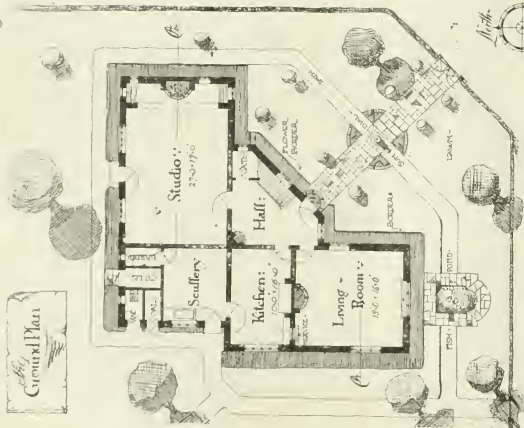
(For the Assessor's award in this BUILDING NEWS Designing Club competition, see pages 683-5.)

The foundation-stones of a new Baptist chapel for the Pishgan congregation at Kenfig Hill have been formally laid. The cost is estimated at £3,500. The architects are Messrs. Jones and Evans, of Port Talbot, and the builder is Mr. Thomas, of Porth.



CHURCH HALL, NEW BRIGHTON.

the
Ground Plan



Design for
An Artist's Cottage
By "Ingolf"



PLACED THIRD

B.I.D.C. "G" 1911-12.

Ch. Ingolf

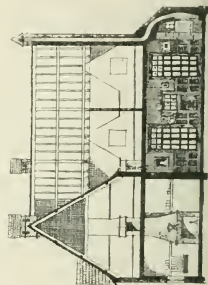


1st Floor Plan

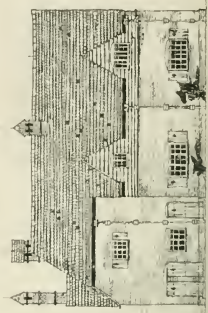
Roofs of narrow front-board, locally, the roof covered with old tiles, the gables weather-boarded, eaves-work with oak log painted white. Windows of painted iron, fitted with sliding sash panes.



South Elevation

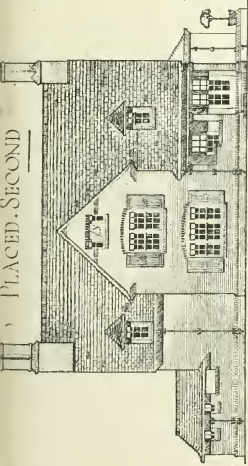


Section AA

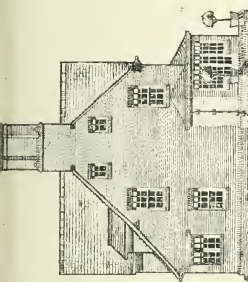


West Elevation

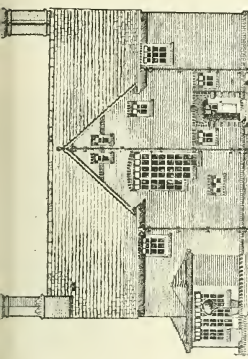
PLACED, SECOND



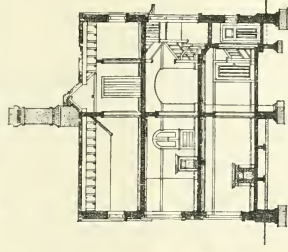
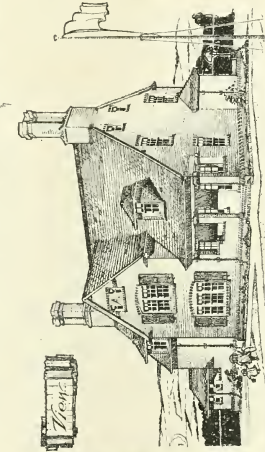
South-East Elevation



North-East Elevation



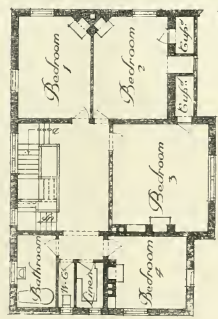
North-West Elevation



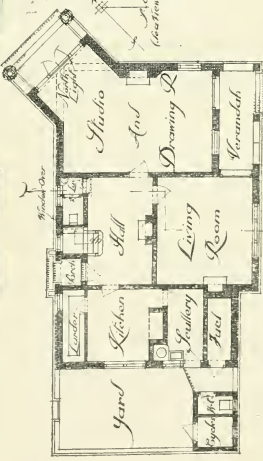
Section A-A

May 3 B.V.D. '13. 1012.
AN ARTIST'S COTTAGE.
Including Studio & Holiday home.

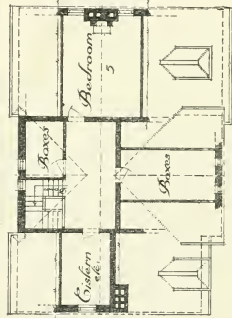
DESIGN BY
FIVE TOWNS



First Floor Plan



Ground Floor Plan



Attic and Roof Plan

Douglas Hall (Huddersfield), John Henry Harvey (Melbourne), Arthur Edward Henderson, Gilbert Higginbottom (Manchester), James Jennings (Ambleside), Gerald Jones (Auckland), Davies Johnson (N.Z.), Charles William Jones (Kingsbury), John Forsyth McIlwraith (Cambridge), Charles James McNair (Glasgow), Herbert Alton Magoon (Edmonton, Alberta), Frank M. Miles, Stanley Charles Miles (Bournemouth), Cecil Herbert Morgan (Madras), John Myers, Edward Osbourn (Pietrarske), Arthur Raymond Pratt (Stoke-on-Trent), Douglas Warren Pollock, Arthur Richard Quarterman, J. F. G. Roberts (Wellington, N.Z.), Alan Keith Robertson (Edinburgh), Alexander Robertson (Kalgoorlie), Hubert C. Sands, Herbert Reginald Saxty, Frederick Robert Edwin Shaddin (Cape Town), J. Roxburgh Smith (Montreal), Herbert Athill Stallwood (Strait Settlements), Edward Stockwell (Basingstoke), Leslie Tanner (Brighton), Francis Robert Taylor, Alexander Caldwell Thomson (Ayr), John Egerton Thorpe (Oxford), Alexander Cameron Todd (Montreal), Richard Arthur Waite (Bradford), Israel Walker, Noel Huxley Waller (Gloucester), Robert Elliot Walton, Frank Ward (Edmonton, Alberta), Leslie Elliot Williamson, Francis Arnold Winter (Sheffield), William Armour Arbuckle (Glasgow), Larnmont Douglas Pennman (Ayrshire), Francis George Glynn Robertson (Glasgow), William John Wright (Glasgow).

SOCIETY OF ARCHITECTS.—The seventh ordinary meeting of the Society of Architects for the session 1911-12 was held at 28, Bedford-square, W.C., on Thursday, May 9, 1912, at 8 p.m. Mr. Percy B. Tubbs, F.R.I.B.A., vice-president, having taken the chair, it was resolved that the minutes of the previous meeting, having been published in the Journal, be taken as read. The minutes were then confirmed and signed. Twenty-one new members for membership and four for studentship were announced. The ballot was then taken, and the following candidates were declared to be duly elected:—As Members: Robert Herbert Blackburn, 8, Fairbank-road, Manningham, Bradford; Herbert Volland Boreham, 73 and 75, Finsbury-pavement, E.C.; Benjamin Chaikin, 47, White Lion-street, Norton Folgate, N.E.; David Charles Davies, 12, High-street, Merthyr Tydfil; William Wright Diggle, 10, Victoria Mansions, West End-lane, West Hampstead, N.W.; Thomas Dowson, "South Cliffe," Eastrow, Sandstead, near Whitby; Burkett John Emery, Council Chambers, 109, Colmore-row, Birmingham; Edward Hale, Guildhall Buildings, Birmingham; John Robert Hall, 10, Paradise-square, Sheffield; Alfred Charles Harbottle, County Chambers, Exeter; Edward Joseph Harte, County Chambers, Exeter; Henry Aubrey Lane, 6, Park-avenue, Mansfield, Notts; Harold Victor Milles-Diamond, "The Mount," Chandlers Ford, Hants; Joseph Edward Stanley Pritchard, Bank Buildings, Kidderminster, and The Knoll, Comberton; Norman Richley, 12, Mowbray-street, Durham; William Fred Sargisson, Ancón, Peru, South America; William Southall, Chapelgate, Bedford, Notts; George Anstey, Rutland, Notts; Bridge-street, Wick; Harold Gibson Walker, Golden Lion Bank Chambers, Whitby; James Edwin Webb, The Guildhall, Nottingham. As Students: John Valentine Bowring, "Woodlands," Eastwood, Essex; Romilly Bernard Craze, 905, Fulham-road, S.W.; Fredrick Fisk Haywood, P.O. Box 492, Johannesburg; Alfred John Johnson, 122, Hindmans-road, Epsom, Dulwich, S.E.; Francis Ralph Priest, 39, West Side, Clapham Common, S.W.; Thomas Rayson, "Hughenden," Bickerton-road, Highfield, Oxford. Professor W. A. Scott, A.R.I.B.A., A.R.H.A. (Member), then gave a lecture on "Grecian Architecture," illustrating his remarks by means of lantern slides and drawings.

The Roman Catholic church, Kila, is about to be restored at a cost of £7,000. The plans have been prepared by Mr. J. V. Brennan, architect, North-street, Belfast.

Correspondence.

THE FINANCIAL POSITION OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—I think most members will endorse the remarks of the auditors, especially the last three lines, as reported by you on p. 659 last week.

I confess I know of no society—not even the "philanthropic" ones—where out of a total of subscriptions of £8,500 odd, more than half goes in rent and salaries. Certainly £2,725 seems a big sum for official salaries—nearly 30 per cent. on the subscriptions!

Is it worth while, moreover, continuing the loss of nearly a thousand a year on the Journal and Calendar?

I see the number of Fellows still slowly diminishes. They bring in most grist to the mill, and if they gradually disappear something will have to be done.

The one thing that seems to pay at the Institute is the Examinations. The receipts from those examinations are £1,459 8s., while the expenses were only £331 9s. 10d. Might not the fees be lowered safely?—I am, etc.,

A WELL WISHER.

THE DECADENCE OF ENGLISH ARCHITECTURE.

SIR,—I am completely in agreement with the views expressed in Mr. Maurice Adams's letter on this subject in your issue of last week. The Council of the Architectural Association has for many years been primarily concerned with educational matters, and is at the present moment maturing a scheme of three years' course, instead of the two years' course, in the Day School. Students who take the third year will concern themselves principally with advanced design of a monumental nature, and will then be encouraged to go on to the Academy schools for a continuation of the work begun by the Association. This has been decided upon by the Council of the Architectural Association schools in the future, and the Council of the Royal Academy have extended practical encouragement to the Architectural Association students who are qualified to go to the Royal Academy. The comprehensiveness and breadth of outlook in artistic matters for which the Academy stands, and the advantage to architectural students of associating with painters and sculptors, has been fully realised. The prestige of the Royal Academy and the glories of its gold medal will still remain the Mecca of the ambitious student, and it concerns us to give the necessary preparatory education in a thorough manner.

THE BUILDING NEWS refers to a new departure, closely allied to the rebelling of the school—viz., the exhibition of fin, detail drawings and photographs of executed works which closed on Saturday last. The students are enabled to see contemporary work by our leading men in a form which permits of intelligent study and observation. An exhibition committee has been formed, and it is hoped to hold a succession of really educational collections of modern work to supplement the training given in the schools. Recent French and German architecture will alternate with English work, and our students will not fail to form their own opinions on the "Decadence of English Architecture." Certainly, until the points of "decadence" are located, and the comparative merits of English and foreign work clearly defined, all this depressing talk on the subject will not lead us anywhere. We believe, with a constant and painstaking system of comparisons, in the manner referred to, that the Association will be taking the first really practical step towards the realisation of our position.

Mr. Maurice Adams's fears for the Architectural Museum are without foundation. The museum is left to us with certain conditions attaching to it, and our intentions are not to override these conditions, but rather to develop and add to the collections under our care from time to time, so that our students may have within their doors a comprehensive

collection of casts, showing the architectural development of this country and others.

There is no doubt that the majority of the casts would be more suitably housed in reserve collections, because many of them are useless to the student in their present crowded state; but that cannot come about until the building can be adapted for that purpose.

Mr. Maurice Adams is an old friend of architectural education, and his views command respect, and it is with great pleasure that I am able to state a policy so completely in accord with his own suggestions. It is not to the Beaux-Arts that we need look, but to ourselves. The sympathetic support of the whole profession, and the energy of the students are the only means wherewith to fight "decadence" in any form.

We are bound to fall short of the ideal state in our education until we receive the Government aid upon which architecture has such just claims; but there are things we can do among ourselves that concern us, and prepare the way.—I am, yours faithfully,

H. AUSTEN HALL, Hon. Sec.

The Architectural Association,
18, Tufton-street, Westminster.

CLARENDON HOUSE, PICCADILLY.

SIR,—Could Mr. Alfred Gotch, Professor Reginald Blomfield, or some other expert authority on Old English architecture, tell us if any engraving or drawing exists of the great house which the great Lord Chancellor Hyde built on property facing Piccadilly, subsequently pulled down, when "Bond-street and Albemarle-street encroached on the beauty of its site"? Pratt was its architect, and the mansion was erected during the Plague year, while Parliament sat at Oxford. It cost £50,000, or three times the sum of its designer's estimate. Evelyn describes it as "a costly and only sumptuous palace," and says it was sold during Clarendon's exile to the young Duke of Albemarle for £25,000, and that he sold it to the highest bidder, some "rich bankers and mechanics," for £35,000, adding, "they design a new town, as it were, and a most magnificent piazza."

... See the vicissitudes of earthly things." Pepys writes in 1666, "I have never seen a nobler pile. . . . It is, without hyperbole, the best contrived, the most useful, graceful, and magnificent house in England," and after wishing its noble builder "long life to enjoy such a noble pile," says, "and when he shall be passed to that upper building not made with hands, may his posterity inherit his goodness, this palace . . . to consummate their felicity." As for Hyde himself, he left on record, "There was nothing of which he was so ashamed as he was of the vast expense he had made in the building of his house." He previously lived at "Fendebire House in St. James's" on the site of the present Bridge-water House. It was afterwards known as Cleveland House, as Lady Castlemaine adopted it in 1668, when she became Duchess of Cleveland. Clarendon House must have been an interesting example of architecture, and if an illustration could be given, I should be glad.—I am, etc.,

MATRICE B. ADAMS.

WHY TRADE RETURNS ARE GOOD.

SIR,—All concerned with trade are asking themselves how it is the trade of this country is going up by leaps and bounds, according to the Board of Trade Returns. The fact is that you see larger returns published, and people are mystified, especially those in the building trade, which trade has been declining ever since the Boer War commenced.

Recently we have been fixing up an agency for Canada for Pudlo, which makes cement waterproof, and of which I am the sole maker. I find that there is a preference given to English-made goods—for instance, in Canada there is a duty of 25 per cent. on English-made goods, whilst on foreign-made goods the duty is 35 per cent. I find that the Germans and many other foreigners send produce to England and then re-ship it to

but they said that if they put the three houses together, and pulled them down, they would get a site of sufficient size or depth to erect a warehouse upon it.—The Master of the Rolls: Are all the houses subject to the same title?—The first defendant: No.—The second defendant: No.—The third defendant: No.—The Master of the Rolls: No. 63a, he said, was a warehouse. No. 62, although rather deeper than No. 63, was a good deal narrower. No. 61 had a little window which was below the level of the pavement. That was one of the windows the defendants were alleged to have blocked, as also a window on the ground floor and two on the first floor. No. 63 had three windows in the basement, the tops of which slightly protruded above the pavement level, and three windows on the ground floor, and three windows on the first floor, the light to which the defendants were said to have interfered with. The depth of No. 63 was approximately from 18ft. to 19ft., and the depth of 62 was something over 20ft. The total surface area of the two houses was about 1,000 sq.ft. The surface area of No. 63a was about 1,050 sq.ft., and in the building there were no windows looking towards the defendants. Defendants admitted that so far as the dominant tenement was concerned, there had been no change, and that the defendants had paid for that; but the point was whether the plaintiff was entitled, as against the tortfeasors, to have the damages assessed upon the footing that what they had done made the whole site valuable to the plaintiff. The plaintiff said that, or other words, was the plaintiff entitled to get £200 for the loss he had suffered? The learned Judge had said he was.—In reply to the Master of the Rolls, the plaintiff said that if the plaintiff was minded to enter into an arrangement to pull down his three premises, and for the erection of one building, it was not clear that the obstruction of light would interfere with that. He could not see why that fact should not be taken into consideration.—Mr. Jenkins contended that it ought not. So far as his research went, he could not find any similar claim put forward by a plaintiff before Mr. Justice Neville had measured the damages by saying that a man would probably pay £200 more for the three sites combined than he would pay for them separately. He submitted that the plaintiff could not claim compensation for damages, and that fact was not altered because the action happened to be tried in the Chancery Division. He contended that the damages paid in the present case must be confined to the injury to the dominant tenement. It was clear that No. 63a was not the dominant tenement, or part of it. He submitted that damage arrived at in that way could not be charged against the defendants.—Mr. Vernon followed the plaintiff in this contention. The Judge had assessed the damages on the wrong basis. All that the plaintiff had a right to was to have the damages assessed for the damage to the light coming to his two dwelling-houses. Lord Justice Kekewich said that the plaintiff had to look at the premises as a whole as a marketable commodity.—The Master of the Rolls said that they had not to take into consideration the quantum of damages at all, if the Judge had properly considered the case. The Master of the Rolls, Mr. Vernon contended that the Judge had no right to take into consideration the site of 63a, which was not the site of the dominant tenement, at all. He contended that the only right which the plaintiff was entitled to have was to have the apertures of the dominant tenement actually existing.—Counsel for the respondent were not called upon.—The Master of the Rolls, in the course of his judgment, said it appeared that the plaintiff was a property which must be taken down, and the site used for another building. It was also apparent that the neighbourhood was one which was never covered by large buildings in the nature of the plaintiff's warehouse. The defendant they had to consider was the measure of damage, and what they were entitled to take into consideration in assessing the damages for the wrong which it was admitted the plaintiff had suffered. The whole site, the plaintiff had not, by reason of delay in commencing proceedings, been able to obtain an injunction. It was clear that if he had commenced the proceedings in time, he could have obtained an injunction, which would have prevented the defendants from building any part of that which was opposite Brunswick-street beyond the line shown on the model, which he supposed was the 45-degree angle that protection was here intended for the benefit of the whole site, and the plaintiff would have had the right to treat it as a whole. To suggest that anybody could rebuild the two buildings upon the foundations of their own site was absurd and impracticable. It was said by the defendants that

that might have been so in the case of an injunction, but that it was not so in a case where no injunction was asked, and that it had been applied at all where damage only was sought.

His lordship asked himself why not? A wrongful act had been committed by the defendants. What damage had the plaintiff suffered? It had been argued that the plaintiff's house with a garden on one side of it or in the rear, the only thing you could do in such a case was to say what damage had accrued to the plaintiff with reference only to the actual building in which there were no windows, and that you must disregard altogether that it was a house with a garden at the back or side, and that all you were entitled to consider was the value of the rays of light which should be prevented from coming into the apertures of the house. He failed to see that the Colts case had any bearing on the question of damages. He failed to see why, in a case like the present, they should not consider the damage done to the plaintiff's whole site. He thought this was what damage the plaintiff had suffered by reason of the wrongful act of the defendants in interfering with the plaintiff's ancient lights. He thought that the learned judge was wrong in not taking the site into consideration, and that the appeal should be dismissed with costs. The Lords Justices delivered judgments to the same effect.

NORWICH BUILDERS' AFFAIRS.—The first meeting of the creditors of Mr. Frederick George Filby, builder, of 191, Earham-road, Norwich, took place at the office of Mr. J. P. Goss, at 10, St. Peter's Place, on the 6th inst. Debtors' statement of affairs showed gross liabilities amounting to £11,773 12s. 6d., expected to rank £1,455 15s. 3d., deficiency £235 12s. 6d. The Official Receiver said that the defendant was a builder, his securities, and that the deficiency was now about £1,314. The causes of failure, as alleged, by debtor, were: "Depression in building trade, and depreciation in value of the houses on speculation." The Official Receiver stated debtor commenced trading as a builder at Norwich, about twenty-four years ago, with a capital of £20. His business has consisted mainly of building houses on speculation. No other business was carried on, and no contract work, but only a "jobbing book." About twelve years ago debtor joined in starting the "Eagle Laundry," contributing about £200 to the capital of the firm, and the partnership was dissolved on the death of Mr. Walker with his widow, and after her death with her son. The principal creditors were Messrs. Francis and Back, £7,807. The meeting decided to leave the matter in the hands of the Official Receiver.

RELIEF FROM BREACH OF BUILDING COVENANTS.—Hyman and Rosenthal v. Rose. In the House of Lords on Tuesday, judgment was delivered by the Lord Chancellor, Lord Macnaghten, Atkinson, and Shaw, of Dunfermline, in the appeal against an order of the Court of Appeal in the case of Hyman and Rosenthal v. Rose. The case was argued by Lord Justice Kekewich, dated April 3, 1911. The Court of Appeal affirmed the following orders: (1) An order of Mr. Justice Hordidge, dated February 4, 1911, restraining the appellants, the defendants, and agents, from varying the front elevation of Adelphi Chapel, Hackney-road (built in 1845), or substantially altering the character thereof until the trial of the action or further order. (2) An order of Mr. Justice Hordidge, dated March 28, 1911, directing the appellants, Mr. Hyman and Rosenthal, of Mr. Justice Ridley refusing to grant relief from forfeiture of the premises. (3) Two orders dated March 2, 1911, of Mr. Justice Ridley to the like effect. By under the orders, the premises were demised to lessees for 99 years less 10 days on a repairing lease and subject to restrictive covenants. The respondent was entitled to the reversion, the appellants were assigned of the lease, and the appellants were desirous of carrying on the business of a cinematograph theatre. Structural alterations were in contemplation for this purpose, but the appellants disclaimed any intention to dilate with the rights of the lessees of the chapel to the use of the public, and stated that they intended, by the erection of movable iron railings, to exercise full rights of ownership over the land surrounding the building, and insisted that the appellants should not be allowed to the Court of Appeal to deposit money sufficient to reinstate the premises at the end of the term, so that the respondent would be absolutely secured in having the building in its original condition on coming into possession. The appellants, Mr. Hyman and Rosenthal, Mr. P. O. Lawrence, K.C., and Mr. Herbert Higgins for the respondent, The House allowed the appeal. The Lord Chancellor, in his judgment, said the point was whether the appeal was upon what terms, if at all, relief should be

given against forfeiture for breaches of covenant in a lease of Adelphi Chapel, under Section 14 (2) of the Conveyancing Act 1881. When that was decided, the decision would have to be applied to the orders made by the Court of Appeal and by the several Judges and Masters before whom this intricate piece of litigation had been discussed, and the different stages. His lordship pointed out that the discretion given by the section was very wide. The Court should consider all the circumstances and the conduct of the parties, and upon no Act was that duty to provide a wide discretion, meaning, no doubt, to prevent one man from forfeiting what in fair dealing belonged to someone else, by taking advantage of a breach by which he was not commensurately and immediately damaged. It was not adv. able to lay down any rigid rules for guiding that discretion. In this particular case there had been breaches of covenant which had to be remedied as a condition to rest upon the appellants' title to certain alterations which had been effected and were insisted upon by the appellants for the purpose of turning this chapel into a place of public entertainment. His lordship had examined the lease and it was to him the same as the lease which was put before him that arrived at by Lord Justice Buckley, and he did not find anything in it which required that the building should be used as a chapel. Certain trades were forbidden, but no restriction was put on the use of the building for any other trade. Nor was there anything to prohibit internal alterations suitable for such trade. The removal of the wall and iron railing was not shown to be a breach of covenant because it was not an Act of the plaintiff, but a breach of the covenant by the defendant. No harm was done to anyone, and the reversion was in no way injured. The opening of a new door in the west wall stood upon the same footing. As to the internal changes relating to the staircase and the level of the floor, it seemed that they were quite legitimate for the purpose allowed by the lease; that, indeed, was the governing consideration. The appellants were willing to deposit sufficient money to secure the restoration of this building to its former condition at the end of the lease, and as they were asking for an indulgence in regard to other admitted breaches of covenant, the execution of this offer should be made a condition of the grant of relief. He was, incidentally, inquiring whether the offer was in excess of what the Court would exact. He agreed that these terms should be in the form suggested by Lord Justice Buckley. The other learned lords concurred. Appeal allowed.

INCREMENT VALUE DUTY: SUCCESSFUL APPEAL.—In the case of J. M. Clark, the referee, has given judgment against the Commissioners of Inland Revenue in an appeal brought by Mr. Robert J. Lumsden, under the Finance Act of 1909-10. The appellant was assessed to increment value duty in respect of a house and shop in Lansdowne-road, Forest Hill, Northumberland, and a gross duty of £25 was charged in respect of an alleged gross increment value of £125. The occasion on which the duty was alleged to be payable was the sale of the house on August 23, 1910, the consideration for the transfer giving rise to the claim being £750. At the time of the sale the fee simple of the property, if sold in the open market by a willing seller, was in then condition, free from encumbrances and from any burden, charge, or restraint other than rates or taxes, might have been expected to realise £625 (the fee simple of the land alone being £500, and the value of the building £125), and the appellant (a) that on the true construction of the Act the site value of the land was represented by the price paid for the property on the sale (£750), less the amount of the difference (£625) being £125, and consequently that the value of the site on the occasion within the meaning of Section 2 of the Act was the true value—namely, £105, and not the value of the site alone, as assessed by the referee. In the alternative, there was any increment within the meaning of the Act it was attributable to some one or more of the elements mentioned in the appellant's notice of the appeal. It was contended on behalf of the appellant that the Inland Revenue was not entitled to claim the increment of the Act the site value of the land on the occasion giving rise to the claim was not £105, but the price paid for the property, £750, less the amount of the difference (£625) being £125, and consequently that the market value at the time of the sale (£625) and the site value of the land at the time of the sale (£105), and that the difference between this result (£220) and the original site value (£105) was the increment value of the land; (b) that the proper amount of deductions to be made in arriving at a site of the land on the occasion for the purpose of the Act was the difference between the site value of the land on the occasion (£625) and the true site value of the land on the occasion (£105). The referee added that he was of opinion the contention (a) of the

appellant was correct and he accordingly decided that the appellant was not liable to pay any increment value duty. The Inland Revenue Commissioners said it is unnecessary to appear.

REDEVELOPMENT CONTRACTORS' FEES. In the Kent Bench Division on Friday Mr. Justice Chelmside and a special jury had before them a case brought by Mr. Arthur Carkeet, builder and contractor, of Redruth, against Messrs. Savages and Savages, limited, merchants, of London, 11, Abchurch Lane, E.C.4., for £217 17s., for work done in respect of the settlement of a fire claim. During the plaintiff's evidence in the box a settlement by consent was arrived at, plaintiff to pay judgment, £190 and costs, and defendant to accept accordingly, and allowed the sum of £76 18s., paid in by defendants, to be taken out of court.

PARLIAMENTARY NOTES.

ANCIENT MONUMENTS PROTECTION BILLS. On the motion of Lord Herschell, a Committee, consisting of the Duke of Northumberland, the Earl of Plymouth, the Bishop of Bristol, Lord Sheffield, and Lord Southwark, was appointed on Tuesday to join with a Committee of the House of Commons to consider the Ancient Monuments Protection Bill, the Ancient Monument Bill, the Ancient Monuments Protection Bill, and the Ancient Monuments Protection (No. 2) Bill.

STATUES, MEMORIALS, &c.

ELDERSLIE WALLACE MEMORIAL. Actual work was begun on Monday in the erection of a memorial to Sir William Wallace at Elderslie, Renfrewshire. Through the generosity of Mr. A. Hazart Speirs, the laird of Elderslie, a site associated with Wallace has been gifted for the memorial in the centre of the village. This site is adjacent to the ancient Elderslie Castle, believed to be the place where Wallace was born, and in the background is the famous Wallace yew which is over 600 years old. The memorial has been designed by Messrs. Murray and Minny, Westminster. The design takes the form of a massive grey Aberdeen granite column, rising from a six-sided pedestal, on which provision is being made for the erection of bronze panels illustrating incidents in the life of Wallace. The column itself is entwined with a scroll, which represents the representation of Wallace's two-handed sword. Surmounting the capital of the column is the Scottish Crown, supported by three shields bearing national arms. The original design has been accepted and hung at the Royal Scottish Academy. The entire cost of the memorial, with the exception of the panels, which it is hoped will be gifted by private donors, will be close on £2,000, and of this sum a good portion has been subscribed.

The British Archaeological Association will hold their annual congress at Gloucester from June 24 to 29.

The death is announced of Mr. James Smith, borough surveyor to the Buckingham Town Council.

Mr. R. M. Winterholton, of Wardsle has been appointed surveyor under the Irlam Urban Council.

The Royal Academy is being built from plans by Messrs. H. Percy Adams, F.R.I.B.A., and Charles Holden A.R.I.B.A., and was illustrated in our issues of July 30, 1909, July 29, 1910, and Feb. 24, 1911.

The Bishop of Walsden dedicated on Sunday the new Lady Chapel at All Saints' Church, Chiswick Hill. The greater portion of the money for the work was contributed anonymously as a thank offering for preservation from danger.

The foundation-stone of a Territorial drill hall was laid at Cowes last week by Princess Alice of Hesse. The hall will be used by the 1st and 2nd Battalions of the Buffs and the Royal Engineers, and will cost £3,000.

A country meeting of the Surveyors' Institution will be held at Nottingham on Thursday and Friday the 30th and 31st inst. Visits will be made to various factories and to the Derwent Valley Waterworks, while there will also be an excursion to the Dukeries, members driving through Thoresby and Cumber to Welbeck.

The executive committee of the United States National Conference on City Planning, which met last week in Boston Mass. from May 27 to 29, have announced that at that time the following subjects will be discussed: "The Progress of City Planning," "How to Finance City Planning," "The German Principles of Zoning," "The American Building Industry Applied to the United States," and "Some Aspects of the Urban Problem."

Our Office Table.

Mr. Richard McBride, the Premier of British Columbia, who has just left London on his return to Canada, has practically settled on a site for the new offices of the Agent-General in London. The available and suitable sites had been narrowed down to three, one in the Strand near the Savoy Hotel, and two on the Strand-Aldwych island area. Before arriving at a final decision in the matter Mr. McBride will consult with his assistants, the Hon. Mr. Borden, and will afterwards meet his colleagues in the British Columbian Cabinet. Mr. McBride's recommendation will be in favour of one of two Strand-Aldwych sites on which he has obtained an option from the London County Council. One of these is close to the Victorian Government offices, and the other close to the Gaiety Theatre, both with frontages on the Strand. If the Dominion Government should decide to build on the Strand-Aldwych area the British Columbian Government may select the site contiguous to the Dominion Government's land, so that the two blocks of buildings may be in architectural harmony, as will be the case with the Australian Commonwealth offices and the Victorian offices, which are to be grouped in the same neighbourhood. The block of land which Mr. McBride will probably recommend his colleagues to acquire on a 99 years' lease has a frontage of 66ft. to the Strand, on which he will propose to erect an eight-story building at a cost of about £50,000.

The first meeting of the London Society will take place on Thursday, May 23, at 7.45 p.m., at the Galleries of the Royal Society of British Artists, Suffolk Street, Pall Mall East, to transact the society's business and to elect a council and executive committee and officers. The chair will be taken by Sir Aston Webb, C.B., C.V.O., R.A. The meeting will be followed by a public meeting at 8.15 p.m., when a paper will be read by Mr. T. Raffles Davison, on "London: As it is, and as it might be," representing the views of the organising committee upon the future work of the society, with lantern illustrations. The chair will be taken by the Right Honourable the Earl of Plymouth, C.B., D.L.

The London County Council received at their meeting on Tuesday a report from the Education Committee recommending that a secondary school for 450 boys be provided on a site in Cedars-road, Clapham Common, already in the possession of the Council, at an estimated cost of about £32,000, and a secondary school for boys, capable of enlargement to 450 places, be provided in the neighbourhood of Putney. The Establishment Committee reported the death of Mr. F. Brown, measuring surveyor in the architect's department. Mr. Brown, who was fifty-two years of age, had been in the Council's service for over twenty-one years, and was in receipt of a salary of £600 a year. In the last year of his service the Public Works Committee it was stated that the cost of works carried out by direct employment of labour during the six months ended September 30, 1911, was £232,386. Of this, by far the largest expenditure related to work on highways, £175,765. The total cost of work during the preceding half-year by direct employment of labour under the various committees was £248,911. The Fire Brigade Committee recommended that legislation be sought to provide that the Metropolitan Water Board shall afford, free of cost to the Council, an efficient supply of water for fire-extinguishing purposes in London.

At a dinner given to the Bridge House Estates Committee at the Savoy Hotel on Monday night by the Chamber of the Committee, Mr. J. W. Domesny, who presided, announced that the improvement of South water Bridge would be begun almost immediately. The tenders were to be called within the next few months, and he estimated that the improvement of the bridge would be completed within two years and a half. The Committee would be able to start upon the construction of St. Paul's Bridge

practically as soon as Southwark Bridge was completed, and meanwhile arrangements would be made for the approaches to that structure. With Mr. Basil Mott, the engineer responsible for the improvement of Southwark Bridge, would be associated Sir Ernest George, A.R.A., in the capacity of consulting architect. Mr. Mott would also be the engineer for St. Paul's Bridge, and an eminent architect, when notice thereof could not be announced, had been approached with a view to assistance.

Sheffield City Council have unanimously decided to sell, for development on garden-city lines, the estate in the Rivelin Valley at present in the hands of the water committee. A new road, made a few years ago, and the adjoining land, cost £60,000, and the corporation now propose to realise the available 220 acres of land to repay the £50,000. The committee intended to exercise a general supervision over the development in order to make the estate a picturesque suburban district, to some extent on garden-city lines. The number of houses per acre is to be limited to twelve.

At the beginning of the year most of the master plumbers in Edinburgh severed their connection with the Building and Allied Trades Exchange, and decided to form a new association. The project was inaugurated at a recent meeting of the plumbing trade, and the agreement which was arrived at has been accepted, it is understood, so says the *Scotsman*, by all the wholesale houses except two. The scheme includes the master plumbers in Edinburgh, with twenty-five exceptions, and these, it is stated, are the smaller employers. The organization, which has been established is the outcome of efforts to check the cutting of prices in estimates. One of the rules provides that all members of the association shall pay a commission into the association funds of 2½ per cent. to 5 per cent. on all contracts, one-third of which will be retained by the association, and the remaining two-thirds divided among the unsuccessful offerors. A recommendation has been made that members of the association should close their trade accounts on and after June 1 with all dealers who are not parties to the agreement, and it is provided that members shall not support merchants or manufacturers who trade with Edinburgh and Leith plumbers who are not members of the association.

Mr. Ivan M. Otway, first clerk and store-keeper in the Public Works Department, Greenwich, has been promoted to the post of the Southern district of the island, and is succeeded by Mr. R. C. Taylor.

Dunfermline School Board have decided to have the Morgan Academy reconstructed at a cost of £10,500. Included in the architect's estimate was the cost of several additional classrooms, a new alterations, and a new system of heating and ventilation.

At Lowestoft, on Friday, a Local Government Board inquiry was held concerning an application from the town council for sanction to borrow a further sum of £2,080, for constructing groynes for the beach, the top of which is 10 ft. above the mean low tide of the sea. The borough surveyor explained that the groynes now to be replaced were built in 1902, and that the loan for their construction has been paid off.

Mr. John Thomas Eayrs, M.I.C.E., F.S.I., who for seventeen years has been borough surveyor for West Bromwich, died on Wednesday week, at his residence, Beeches-road, West Bromwich. Mr. Eayrs resigned the position of borough surveyor in 1896, and had since been in practice as a consulting engineer in Birmingham. He was a past president of the Institution of Municipal and County Engineers.

It was unanimously resolved at Dunfermline Town Council, on Monday, to appoint Mr. J. Wilkes, of Birmingham, as town-planning adviser, at a salary at the rate of £400 a year. Mr. Wilkes, as soon as the town-planning enquiry is finished, will return to his duties at Birmingham, where town-planning schemes are being carried out. Answering a question, Bailie made the appointment of an expert. The Ordnance Survey Department, which had been approached, would have charged £600 for continuing alone.

Per gallon

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| Fine Pale Oak, Varnish | | \$0 |
| Fine Copal Oak | | 10 00 |
| Superfine Pale Elastic Oak | | 0 12 |
| Fine Elastic Oak | ..... | 0 12 |
| Superfine Hard-drying Oak, for seats of churches | ..... | 0 14 |
| Fine Elastic Carrriage | ..... | 0 12 |
| Superfine Elastic Carrriage | ..... | 0 12 |
| Fine Pale Maple | ..... | 0 18 |
| Finest Pale Durable Copal | ..... | 0 18 |
| Exquisite Flatting Varnish | ..... | 0 12 |
| Excellant Flatting Varnish | ..... | 0 18 |
| White Copal Enamel | ..... | 1 4 |
| Exquisite Pale Paper | ..... | 0 12 |
| Best Japan Gold Size | ..... | 0 10 |
| Best Black Japan | ..... | 0 18 |
| Oak and Mahogany Stain | ..... | 0 8 |
| Brunswick Black | ..... | 0 8 |
| Berlin Black | ..... | 0 18 |
| Grouting | ..... | 0 10 |
| French and Bruch Polab | ..... | 0 10 |

Boyle's latest patent "air-pump" ventilators have been supplied to the Grammar School, Horsham.

St. John's Schools, Cardiff, are being supplied with Shorland's warm-air ventilating patent Manchester grates, by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Messrs. Wm. Potts and Sons, Ltd., clock manufacturers, Guildford-street, Leeds, and Newcastle, are now erecting clocks at Skipton West Yorks; Christ Church, Carlisle; Ascham Church, East Markham, Notts; and Kighope Church, near Sunderland, Co. Durham; Carlton Robin Hood, County School, West Yorks, for memorial committee; and a memorial clock for East Yorkshire, and one at Brough, Westmorland, and other important work; also restoring and cleaning several church and public clocks in different parts of the country.

Mr. G. P. Knowles, of 39, Victoria-street, Westminster, S.W., has lately taken into partnership Mr. K. D. D. Grazebrook, son of Mr. H. Durley Grazebrook, the well known barrister, and the firm now consists of G. P. Knowles, B.Sc. (Hons.), A.M.I.C.E., F.S.I., etc., J. B. Knowles, F.S.I., and K. D. D. Grazebrook. The very successful courses of preparation for the Surveyors' Institution examinations, conducted by Mr. Knowles, are maintaining their popularity, and at the close of the last session contained 97 per cent. of Mr. Knowles's pupils, one of whom is the winner of the "Penfold Gold Medal" for highest marks in the final examination.

The county council of Dumfriesshire has accepted tenders amounting to £1,700 for the construction of county buildings in English-street, Dumfries.

The Northamptonshire County Council have decided to carry out various improvements to main highways, at a cost of £7,500, towards which they have been promised a grant of £5,000 by the road board.

A new trades hall and institute is to be erected on the Great North Bridge at Doncaster. The assembly-hall will accommodate 450 people. The scheme is expected to cost about £7,000, of which £2,000 will be for the site.

The urban district council of Pembroke, Co. Dublin, are about to proceed with the project of extending the Merriem pier and erecting new pavilion baths thereon, at an estimated cost of £13,000, in accordance with the designs of Messrs. Kaye-Parry and Ross, of Dublin.

The Local Government Board has sanctioned the borrowing by the Swansea Corporation of £6,550 and £10,167 for erection of artisans dwellings on the Cwm-road and Trewyddfa Common sites respectively. The housing committee of the corporation has decided to acquire a freehold site on Town Hill from the Garden Suburb Freehold Company, Limited, for £4,000. It is 301 acres in extent.

An improved water supply is about to be produced for the village of Earl's Colne; Essex, for the Halstead rural district council. The engineers are Messrs. Sande and Walker, who anticipate getting a good supply on a site at the George, at a depth of from 250ft. to 300ft. There will be 525 houses to supply, or a population of about 2,100. About 42,000 gallons of water will be required per day.

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|---|----------|----------|---------------------|-------------------|
| Stretchers and Headers— | 81. each | 81. each | 81. each | 81. each |
| Internal and External Angles— | 12 each | 12 each | 12 each | 12 each |
| Chimneys, Stretchers— | 5d. each | 41. each | 6d. each | 81. each |
| | | | | 6d. each |
| | | | | For 1,000 |
| Majolica or Soft-Glazed Stretchers and Headers | £21 17 6 | | | |
| Quoins and Battresses | £21 17 6 | | | |
| Compass bricks, circular and arch bricks | | | | |
| of single radius 48 in. per 1,000 over above | | | | Not exceed- |
| ing 48 in. per 1,000 | | | | 9 in. |
| Camber arch brick, any kind or above | | | | 9 in. x 2 1/2 in. |
| Stretchers cut for Closets | | | | |
| Nicked Double Headers | | | | |
| £1 for 1,000 extra. | | | | |
| These prices are carriage paid in full truck loads to | | | | |
| London stations. | | | | |
| | s. | d. | | |
| Thames Sand | 6 | 0 | per yard, delivered | |
| Pit Sand | 7 | 0 | " " | |
| Thames Ballast | 8 | 0 | " " | |
| | 0 | 0 | d. d. | per ton. |
| Best Portland Cement | 31 | 0 | to 34 | delivered |
| Best Good Blue Lime Lime, 200 | | | | " " |
| Exclusive of charges for sacks. | | | | |
| | s. | d. | a. d. | Per yard. |
| Grey Stone Lime | 13 | 0 | to 14 | delivered. |

BUCKS 270
TLY 89

| TILES. | | | s. d. | Delivered |
|--|----|------------------------|-------|-----------|
| Plain red roofing tiles | 42 | 0 per 1000 at ry. str. | | |
| Blue and Valley tiles | 42 | 0 per doz. | | |
| Brooklyn tiles | 42 | 0 per 1000 | | |
| Ornamental tiles | 42 | 6 " | | |
| Hip tiles | 42 | 0 per doz. | | |
| Rustion red, brown, or brindled do. (Edward's) | 47 | 6 per 1000 | " | " |
| Hip tiles | 47 | 0 per doz. | " | " |
| Valley tiles | 3 | 0 " | " | " |
| Selected Plain tiles—roofing tiles—Plain tiles (Peake's) | 48 | 0 per 1000 | " | " |
| Ornamental do. | 48 | 6 " | " | " |
| Hip tiles | 48 | 0 per doz. | " | " |
| Valley tiles | 3 | 4 " | " | " |
| Rosemary " brand plain tiles | 48 | 0 per 1000 | " | " |
| Ornamental tiles | 50 | 0 " | " | " |
| Hip tiles | 40 | 0 per doz. | " | " |
| Valley tiles | 6 | 0 " | " | " |
| Staffordshire (Hanley) Reds or Brindled tiles | 42 | 6 per 1000 | " | " |
| Hip tiles | 46 | 0 per doz. | " | " |
| Valley tiles | 6 | 0 " | " | " |
| "Harehill" brand plain tiles, sand-faced | 60 | 0 per 1000 | " | " |
| Ornamental do. | 60 | 0 " | " | " |
| Hip tiles | 40 | 0 per doz. | " | " |

OILS.

| OILS. | | | | |
|---------------------------------|------------|----|----|------------|
| Rapeseed, English pale, per ton | \$38 | 16 | 00 | \$38 16 00 |
| Do, brown | " | 26 | 16 | 00 |
| Do, refined | " | 30 | 00 | 00 |
| Olive, Spanish | " | 39 | 10 | 00 |
| Real, pale | " | 31 | 00 | 00 |
| Do, refined | " | 32 | 00 | 00 |
| Do, Ceylon | " | 43 | 10 | 00 |
| Do, Mauritius | " | 43 | 10 | 00 |
| Do, Java | " | 43 | 10 | 00 |
| Do, N.1 Kernel | " | 35 | 00 | 00 |
| Glain | " | 17 | 00 | 00 |
| Do, refined | " | 17 | 00 | 00 |
| Lubricating U.S. | per gal | 0 | 7 | 00 |
| Petroleum, refined | " | 0 | 0 | 00 |
| Do, kerosene | per barrel | 0 | 0 | 00 |
| Do, Archaol | " | 0 | 19 | 00 |
| Lined oil | per gal. | 0 | 3 | 11 |
| Base oil | " | 1 | 00 | 00 |
| Tarpetine | " | 0 | 3 | 11 |
| Patty (Genuine Lin.) | per cwt. | 6 | 11 | 00 |
| Do, Pure Lined Oil | " | 6 | 11 | 00 |

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| GLASS (IN CRATES). | | | | |
|---------------------------------|-------------|-------------|----------|-------|
| English Sheet Glass: | 15oz. | 31oz. | 26oz. | 32oz. |
| Fourths | 14d. ... | 21d. ... | 31d. ... | 41d. |
| Thirds | 24d. ... | 34d. ... | 44. ... | 5d. |
| Fintoed Sheet | 24d. ... | 34d. ... | 4d. ... | 8d. |
| Hartley's English Rolled Plate: | 1in. | 7 1/2in. | 1in. | |
| | 3 1/2d. ... | 4 1/2d. ... | 3d. | |
| Figured Rolled, and Repousse: | | White. | Tinted. | |

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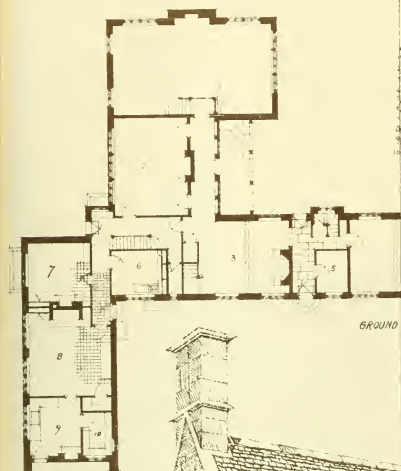
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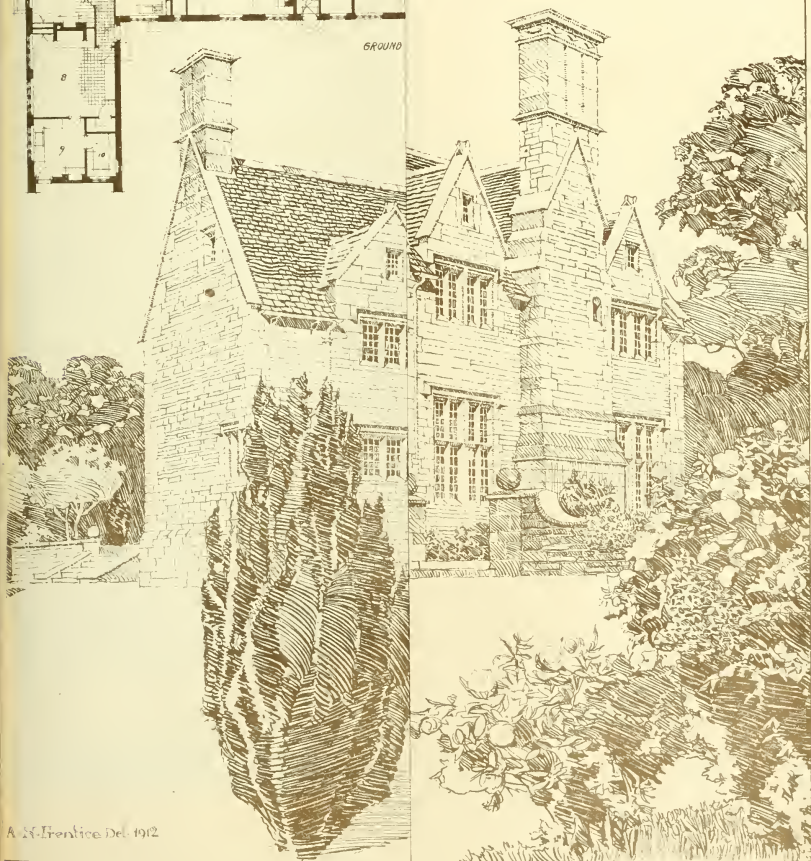
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PRENTICE F.R.I.B.A.

ARCHITECT.



GROUND





THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinham House,

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Strand, W.C.

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Messrs. Nicholl's Premises, Regent-street, W. M. Henry Tanner, F.R.I.B.A., Architect.

Cemetery Buildings, Whitby Bay. View and plans. Messrs. Oliver, Leeson, and Sons, Architects.

St. Joseph's Church, Aldershot. Interior view, elevations, and plans. Design by Messrs. H. R. and B. A. Pouler, Architects.

Entrance Lodge, Pilkerro, Forfarshire, N.B.: Sir R. S. Loder, A.R.S.A., Architect. "The Fox and Pelican," Graydon A. Messrs. Read and MacDonald, Architects. (From "Modern Cottage Architecture," by Mr. Maurice B. Adams, F.R.I.B.A.)

THE AMERICAN BUNGALOW.

By GEORGE ASHDOWN AUDSLEY, LL.D., Architect.

To the dwellers in city streets, or in the suburban districts around our large towns, in which dwellings of three or more stories, closely huddled together, seem to be the order of the day, the delights of the Bungalow, as it exists in the favoured spots in the United States, and notably in such a paradise as Pasadena, in the State of California, are absolutely undreamt of. To those who love a simple life, in which comfort obtains without the chains of ceremony, and in which empty pretensions find nothing to feed upon, there is no dwelling so absolutely congenial and restful as a well-planned, one-story, and roomy bungalow.

Picture such a dwelling, in a garden of flowers, growing in all the freedom of uncultivated Nature; surrounded with peach and orange-trees laden with golden fruit; and with its pergola almost bending under its load of luscious grapes—picture all this under an azure sky, and fanned with a perfume-charged breeze—and compare it with the best our speculative builders are offering to-day in the so-called "garden suburbs."

We cannot transform the English climate into that of Southern California, and I, for one, would not desire to do so, even if it were possible; but we can easily learn a lesson from what the architects of that country are accomplishing in the direction of domestic accommodation and home comforts, at very moderate expenditures. We can surely accomplish something of a kindred nature, especially in districts where land is plentiful, and can be secured at a moderate figure; and we well know that in the outside matter of fruit and flowers this country need not envy California, even though it cannot grow oranges in the open air. With these few words by way of introduction, I may enter directly on the subject of bungalow planning, with special allusion to the plans prepared for the present article, which are representative types of those commonly adopted for bungalows of moderate dimensions and cost. The term bungalow does not necessarily mean a small one-story dwelling, for it is often applied to a house of considerable size, which, in addition to a spacious and well-appointed ground-floor, replete with every necessary modern convenience, may, and commonly does, possess a roomy attic, containing bedrooms, bathroom, and rooms for storing trunks and other things not in daily use. This attic is, however, invariably in the

roof proper, the eaves of which are seldom higher than is rendered necessary by the moderate height of the ground story, and which frequently extend beyond the walls to form the covering of the veranda—a practically universal and indispensable feature in the bungalow. To such large bungalows I need not further allude in this short article.

The smallest bungalow commonly comprises a single living-room, opening directly from a veranda, a kitchen, two bedrooms, one of which may be very small,



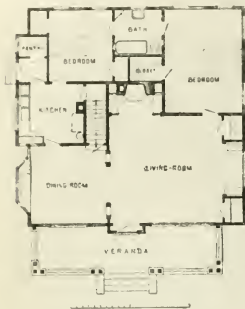
— PLAN I. —

a bathroom, and two or more convenient closets. If the bungalow is to be occupied all the year round, a small cellar will be provided, in which a central hot-air apparatus will be placed. In addition, a fireplace of good size, for burning logs, is usually provided in the living-room. Of a bungalow of this very simple character it is unnecessary to give a plan. The most important feature in all good bungalow plans is the general living-room, which occupies a similar position, so far as its utility extends, to the old English "house-place," still to be seen in some of the dwellings on the dairy-farms of Cheshire and elsewhere.

In small bungalows, this apartment serves as a dining-room, as well as a general sitting-room, requiring in such a case to be of considerable size, especially in its length, and to be fitted with as many conveniences as space will permit. The living-room is usually entered directly from the veranda, with at the intervention of anything in the nature of a porch or vestibule having double doors. In bungalows in warm climates, or in these only inhabited during the summer and autumn, a direct entrance is to be desired, and the solid floor of this is left open during the day, the opening being simply protected against insects by a light screen door, as indicated in Plan I. The living-room should be well lighted, so that all its part may be equally pleasant and attractive. A good example is furnished by Plan I, in which the room is devoted to its legitimate use. In addition to the two large windows under the veranda, it has a large projecting window at its west end (the veranda should in all possible cases face the south), fitted with box-seats, and two windows in the "angle-nook," adjoining the fireplace, at the east end. In bungalows occupied in early spring, or all the year round, the fireplace, with all its pleasant accessories, is a most desirable addition, even when a central heating system is provided. A blazing log-fire has charms peculiarly its own. In the apartment under consideration, two cupboards and two book-shelves are provided, adding much to the general comfort and convenience. Another and differently-planned living-room is shown in Plan II. In this arrangement, the angle-nook is not so favourably placed for a daylight lounge; but the recess at the end of the room, with its window and seats, forms a comfortable place for reading or fancy-work. Two convenient cupboards flank the recess. A feeling of spaciousness is imparted to the living-room by the manner in which the dining-room opens from it.

In Plan I, the dining-room is also entered from the living-room through a wide opening, which would, in all probability, be hung with portières. The room is lighted by a large projecting window fitted with a box-seat. The kitchen communicates directly with the dining-room by a swing-door—the most convenient form for serving purposes—and is fitted up with cupboards, drawers, sink, and two washing tubs, in addition to the stove and hot-water cylinder, as indicated. The stair to the cellar descends from the small space between the kitchen and the inner passage, from which the bedrooms and bath-rooms are entered. In this passage is

provided a linen-closet (warmed in cold water by the furnace flue, which ascends through it), and at its other end is located a convenient store-room, the door of which has its upper panels glazed, so as to light the passage, assisted by light from similar glazed panels in the doors between it and the kitchen, and also in the bathroom door if considered desirable. The stair to the two attic bedrooms rises from the passage.



— PLAN II. —

The two bedrooms on the ground-floor are rooms of good size, and are provided with wardrobe closets as usual in American houses. The rear and larger portion of the bungalow would have a low-pitched, overhanging roof, gabled east and west, while the roof of the front portion, of a somewhat lower pitch, would extend over the veranda, and have a single gable toward the south. A suitable window would be inserted in each of the gables, lighting the bedrooms situated under the higher portions of the roofs.

Plan II. shows a comfortable bungalow of a square form, the kitchen portion being slightly projected, but not carried into the gable above. The veranda would, as a general rule, be covered by an extension (at a less slope) of the main roof; but otherwise it would have an independent roof, gabled in front. The interior arrangement is extremely simple, and of a character very commonly found in American bungalows of moderate dimensions. The appointment of the living-room has already been described. The dining-room is conveniently placed, and is directly reached from the kitchen through a swinging door. The stair which rises from the living-room leads to the two attic bedrooms and box-rooms. The kitchen is fitted up in a manner similar to that in "An I. and is also provided with a cook's pantry, opening from the kitchen lobby. A stair from the kitchen leads to the cellar containing the hot-air apparatus. The two bedrooms have direct communication with the bathroom, and have convenient wardrobe closets. The principal bedroom, centered from the living-room. The roof of the veranda is supported on square posts of wood which rest on stone piers. Such a plan, being in line with the foundation walls of the bungalow, are very commonly built of rough rubble, or of rubble-stones laid in cement, producing a good, rustic effect. Windows are frequently built in a similar fashion.

A bungalow of a compact form is shown in Plan III. It is so arranged that it can be covered with a plain unbroken roof, hence no projecting features save the small hipped veranda, which merely requires a light lean-to roof. The arrange-

ment of all the rooms is extremely simple, and, from the bungalow point of view, very convenient. The dining-room is separated from the living-room by sliding doors. The living-room has a large fireplace, and on each side of its breast are low cupboards and drawers, surmounted by glazed bookcases. A box-seat is placed along the wide window. The stair from the dining-room leads to the two bedrooms



— PLAN III. —

occupying the central, higher portion of the roof, which may be gabled either east and west, or north and south, as taste may direct. The kitchen is fitted up in a manner similar to those already alluded to, and from it the stair descends to the cellar, in which is placed the hot-air apparatus, etc. The bedrooms are of good size, and have convenient wardrobe closets. The bathroom, 8 ft. 6 in. square, is fitted with every necessary convenience, as indicated.

This article has treated only on the planning of the American bungalow. To enter on the subject of its external architectural design, and on matters of construction, would call for a special essay quite as long as the present article.

YORK ELEMENTARY SCHOOL COMPETITION.

We have already announced the result of this competition, in which no fewer than 203 designs were submitted. Out of this number, the assessors, Messrs. T. Mellard Reade and Son, selected twenty-nine for further consideration, and these have been on view at the York Art Gallery during this week. It was probably owing to the difficulty of obtaining a room of sufficient size that the whole of the drawings were not exhibited; but the exhibition was thereby shorn of much of its interest, as a number of the twenty-nine were very poor indeed—so much so, in fact, that it is hard to believe that there were not better ones among so large a selection as 203. The competition was interesting from the fact that it was one of the first open ones to be held since the Board of Education's new requirements came into force. The type of plan now favoured by the Board is one in which the hall is kept entirely separate from the classrooms, so that it may be used for singing, gymnastics, etc., without disturbing the occupants of the other rooms. School planning is, therefore, at present in a transitory stage, and it was hoped that this competition would produce something which would help in evolving the new type of plan which is required. The site is, or rather will be, bounded by roads on all its four sides, but is some-

what small, and it was a difficult matter to provide the accommodation asked for and, at the same time, to leave space for open and well-shaped playgrounds.

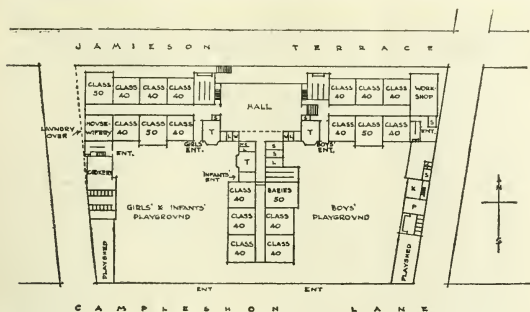
Competitors could provide either one hall for the joint use of the three departments, or separate ones for each. The type of plan which was apparently most favoured by the assessors was a T-shaped one, with one large hall at the intersection. This plan certainly adapts itself well to the site, but has one serious objection in that it necessitates placing a number of the classrooms with a north aspect. While opinions may differ as to the advisability or otherwise of a direct south aspect, everyone will agree that it is essential that a classroom should have sunlight during some part of the day. Of course, in a one-story school it is possible to get a certain amount of sunlight into any classroom by dormers over the corridors; but this is hardly a satisfactory arrangement. This question of aspect only serves to emphasise the uncertainty of competition work, especially when the opinions or prejudices of the assessor are not known beforehand. In this particular case, it is safe to predict that nine assessors out of ten would have ruled out both the first and the second designs on the question of aspect alone. Another type of plan which was in evidence was on the quadrangle system, in which the various rooms are grouped around one or more open courtyards. With so small a site, this type was hardly a success, as so much room was taken up by the buildings that very little space was left for playgrounds. A third type showed the senior departments and the infants' department in separate buildings, arranged along the east and west boundaries, with the centre of the site left open for playgrounds. By this means the north aspect for classrooms could be avoided; but it was necessary for the infants to have a separate hall of their own. Practically all the plans exhibited belonged to one or other of these types, with a large preponderance in favour of the T-shaped one.

The school was to consist of three departments—for 250 boys, 300 girls, and 250 infants respectively—together with a domestic subjects centre, manual workshop, caretaker's house, and a spare room which might, if ever required, be used for shower-baths. The total cost was not to exceed £10,000.

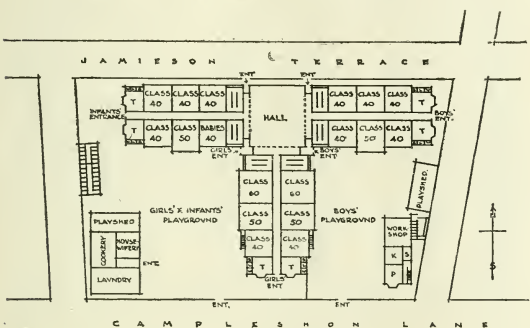
The design placed first, by Mr. J. T. Proffit, is, on the whole, a satisfactory one. A number of the classrooms have a north aspect; but that, as mentioned above, is unavoidable if a T-shaped plan be adopted. The entrances and cloak-rooms adjoin the hall, and, as the scholars will no doubt assemble in the hall both at the beginning and at the end of the school hours, this is probably the best position, though it is possible to ventilate the cloakrooms better if they are situated at the ends of the building. The placing of the lavatories in the cloakrooms is hardly in accordance with modern practice. The playgrounds are excellent, being open to the south, and of good shape; but the position of the latrines, which adjoin the cookery-room in one case and the parlour of the caretaker's house in the other, is bad, and will doubtless have to be revised before the plans obtain the approval of the Board. The elevations are very poor.

Mr. E. R. Barrow's scheme, which was placed second, is on similar, but more symmetrical, lines than the selected one. The entrances are not so well arranged, and the playgrounds are more irregular in outline; but the elevations are decidedly more interesting.

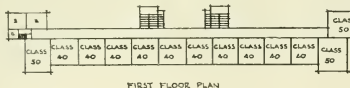
The third design, by Mr. J. A. O. Allen, is a variation of the T-shaped plan, but has



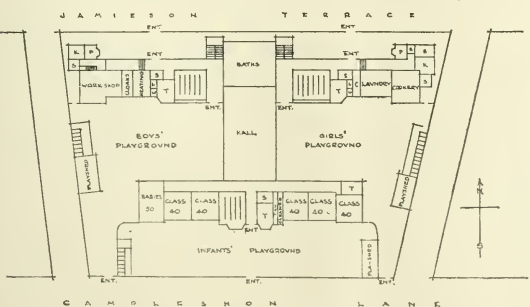
DESIGN PLACED FIRST.—Mr. J. T. PROFFITT, M.I.C.E., Architect.



DESIGN PLACED SECOND.—Mr. E. R. BARROW, F.R.I.B.A., Architect.



FIRST FLOOR PLAN



DESIGN PLACED THIRD.—Mr. J. A. O. ALLAN, Architect.

several distinctive features, the chief of which is that every classroom has a south aspect. This has, however, only been achieved by putting a cross-piece on the tail of the T, which cuts up the playgrounds rather badly, in addition to which all the classrooms in the boys' and girls' departments are on the first floor, the hall being on the ground floor. The lighting and ventilation of the whole building are excellent.

The design placed fourth, which was by Messrs. Wright and Hamlyn, is in some respects better than the first three, but would be improved if the positions of the departments were reversed. A number of the classroom windows are right on the street-line, and the room for shower-baths is lighted only by pavement lights. The elevations are simple and unassuming.

Mr. Edwin Cooper submitted a very simple and compact plan, which would have stood a good chance but for one serious defect—the boys' and girls' corridors were blocked at one end, and had no end windows or exits. Otherwise, this was quite one of the best plans on view, while the simple and picturesque elevation compared favourably with any of the others.

Messrs. Adshead, Topham, and Adshead divided their infants' department from the seniors' one, placing the former on the east boundary, and the latter on the west. The majority of the classrooms had an east aspect, while none had a north one, and the playgrounds were square and sunny. A number of the classrooms were rather narrow; but, on the whole, this was an excellent scheme, and deserved a better fate.

Messrs. Wills and Anderson's block plan was, perhaps, the best of all, as it consisted of a single building extending along the whole of the north side of the site, leaving all the rest free for playgrounds. This was achieved by placing the girls' classrooms and the domestic, science, and other special rooms on the first floor; but the assessors evidently regarded it as essential that the classrooms should be on the same level as the hall, which no doubt is the most satisfactory arrangement.

Messrs. Cheers and Smith had a very compact and straightforward plan, but made the mistake of reversing the T, thus keeping the sunlight from the playgrounds to some extent, and leaving them exposed to the north winds.

Messrs. Shaw and Vowles showed what was, perhaps, the best of the courtyard plans; but while the building itself was an excellent one, it occupied so much space that the playgrounds were very narrow and cramped.

Mr. Abel Round submitted a scheme with many good points, and had carefully considered the aspect of the classrooms; but the plan would have been considerably improved if the classrooms could have been more effectually disconnected from the rest of the school.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

The fourteenth meeting of the Royal Institute of British Architects for the present session was held on Monday evening at 9, Conduit-street, W., the chair being occupied by the President, Mr. Leonard Stokes. RECENT UNIVERSITY ARCHITECTURE IN THE UNITED STATES.

A very full paper on this subject, illustrated by numerous maps, drawings, photographs, and by lantern slides, was read by Mr. R. A. Cram, chairman of the Committee of Education of the American Institute of Architects. He traced the develop-

Mr. Cram's collection of photographs and drawings will be on view at the R.I.B.A. Galleries, 9, Conduit-street, W., until Saturday, June 1. Admission on presentation of visiting card.

changed, its chapel. The new type shows suits of a study and two bedrooms for two undergraduates, and a study and bedroom for each graduate student, with a private bath behind every two suites. There are, as everywhere, large and well-equipped gymnasiums, and magnificent schools of science. The dormitories at Princeton were designed by two young men from Philadelphia, John Stewardson and Walter Cope, both of whom died at a pathetically early age. Cope and Stewardson's work at Princeton was so beautiful, so convincing, that the University authorities wisely passed a law that for the future every building designed at Princeton should follow the same general style. Seventy-nine Hall, Patton, McCosh, and the Gymnasium followed in quick succession; then came the great Palmer Physical Laboratory, the Biological Laboratory—Guyot Hall—Upper Pyne, and Lower Pyne; and a little later, after Mr. Cram had become supervising architect, Campbell Hall, by his own hand, and the altogether wonderful quadrangles of Holder and Hamilton Halls, by Messrs. Day Brothers and Klander, of Philadelphia. The most recent Princeton work is the great Graduate College the lecturer's firm is now building. The plan exhibited showed only the work now in hand, the quad, and the great hall and its kitchens, together with the Cleveland Tower, a national memorial to a former President. In some distant future a second quadrangle will be constructed to the south and east, containing the chapel, the library, and quarters for fellows, which will restore the tower to the centre of the composition. Some day a third quad will be developed to the north-east, and then the group will be complete, for the dean's lodgings, with their private gardens, to the south-west of the great hall, are already under construction. Mr. Cram also referred to the great Universities, including Columbia and New York, McKim, Mead, and White's work at Princeton, the Georgian Paissian Alumnae Hall at Yale; to the Naval Academy at Annapolis, which is strictly French; and the University of California, which is growing on scrupulously Beaux Arts lines. The Georgian style is employed at Harvard and Williams, and in the colleges for women in Exeter, in Virginia, and Wheaton, in Massachusetts. Georgian also, with rather quaint Roman elements, has been used by McKim, Mead, and White for the vast War College at Washington. The University of Pennsylvania shows still more of Cope and Stewardson's wonderful work, though here it is couched in an extremely rich Elizabethan vernacular. Washington University, St. Louis, is a later work of this same firm of Cope and Stewardson, after the latter had died, and good as it is, it shows the loss of the peculiar poetry that marked everything Stewardson touched. In the additions to Chicago University, Shepley, Rutan, and Coolidge have been badly handicapped. For the last time, in Washington, "College of the City of New York," which is as poetical, fantastic, and imaginative as the other is austere and cautious. Mr. Cram also illustrated two theological seminaries—a Presbyterian one, by Messrs. Allen and Collins, in New York, and a Roman Catholic institution, by Messrs. Magnus and Walsh, at Boston. In Leicester, the lecturer showed some views of the beautifully-situated Military Academy of West Point, which is Gothic, and of various types and phases.

At the close a cordial vote of thanks was awarded to Mr. Cram on the motion of Mr. Edward P. Warren, seconded by Sir Aston Webb, C.B., R.A.

R.I.B.A. FINAL EXAMINATION RESULTS.

The Board of Architectural Education of the Royal Institute of British Architects announce that the designs submitted by the following students, who are qualifying for the Final Examination, have been approved:—
Subject I. (a): A Large Monument to Commemorate King Alfred's Refounding of London.—Mr. H. A. Dod, Mr. Hal Harper, Mr. Ernest Prestwich, and Mr. H. C. Bradshaw.

Subject I. (b): A Terrace of Five Houses.—Mr. R. F. Dodd, Mr. Walter E. Wooding, Mr. S. Stevenson Jones, Mr. W. Harding Thompson.

Subject II. (a): A Large Monument to an Explorer.—Mr. H. Lidbetter, Mr. R. S. Dixon, Mr. F. O. Laurence, Mr. E. F. A. Broadhead, Mr. R. Duckett, Mr. E. F. Bothwell, Mr. C. M. McLachlan, Mr. W. E. Wooding, Mr. R. A. Barker, Mr. J. O. Cheadle.

Subject II. (b): A Cloister with External Entrance Gateway or Tower to a Collegiate Building.—Mr. H. A. Dod, Mr. H. C. Bradshaw, Mr. E. Prestwich.

THE SOCIETY OF ARCHITECTS' EXAMINATIONS.

The Easter examinations were held on April 2, 3, and 4 in London, Manchester, Leeds, Cardiff, Birmingham, Oxford, and Dublin, the latter being a new centre.

The Council have appointed Mr. A. Alban H. Scott, M.R.S.A., examiner in Section IV. (Sanitary Science), in the place of Mr. C. H. Mead, M.R.S.A., who has been compelled, owing to continued ill-health, to relinquish the duties. Mr. R. Wilcock, F.R.I.B.A., examiner in Section IIIA, was prevented by a serious illness from completing his duties, which were undertaken by the Chairman of the Board of Examiners, Professor Henry Adams, M.Inst.C.E.

The following have satisfied the examiners:—

Edward Richard Bill, 7, Preston-street, Shrewsbury; William Bradley, 222, Rishton-lane, Great Lever, Bolton; Sydney Fritz Evershed, c/o Messrs. Law and Harris, 1, Sheep-street, Northampton; William John Hadley, 12, Richmond-terrace, Carmarthen; Henry Lyons, Ivanhoe, Waverley-avenue, Fairview, Dublin; Harold Ewart Matthews, Llanfair, The Avenue, Yeovil; Donald John Moss, 44, Linden-grove, Peckham Rye, S.E.; J. H. Phayre, 12, Promenade, Bournemouth; George Herbert Russell, Highbury Lodge, Hitchin; Edward Denton Sherlock, 12, Egerton-road, Fallowfield, Manchester; Reginald Hardy Syms, Rosmore, The Grove, Isleworth; Robert Thompson, "Brookside," Catshill, Bromsgrove; Harold Ascensars Wilkinson, 68, Bury-road, Nee Park, Wood Green, N.

The following students of the Society have obtained sectional certificates:—

Section I. (Architecture).—Francis Clemes, Weston-super-Mare; Charles Ford, Reading; William John Isaac, Warrington; Arthur Barnes Johnson, Croydon; Percy Morris, Nelson.

Section II. (Building).—William John Isaac, Warrington; Wilfrid Edwin Kelle, London; Leonard Arthur Reynolds, Hull; Frederick John Taylor, London.

Section III. (Practice).—Halstead Best, Whitworth; Harold John Lurecock, London; John Slater, Blackburn; Edward John Williams, Leicester.

Section IV. (Sanitation).—James Alan Grimshaw, Accrington; Harold John Lurecock, London; Percy Morris, Nelson; Clement Frost Overly, Weston-super-Mare; John Edward Sanders, Liverpool; John Slater, Blackburn; Frederick John Taylor, London; Edward John Williams, Leicester.

A PHOTOGRAPHIC EXHIBITION.

There is a one-man show now on view at the Camera Club, John-street, Adelphi, which will well repay a visit, for the artist is Mr. J. C. Warburg, so long known for his excellent work. Exactitude of definition here, we know, given place to impressionist ideals, and during the last decade this departure from the earlier photographic methods has been carried, no doubt, to the borders of the extreme, generally speaking, by the effort to emulate the character of water-colour monochrome. Mr. Warburg, though moving with the times, seems wisely to have foregone such extravagancies, and he recognises, too, in the main, the limits of the art which he prac-

tises so cleverly. Thus, in No. 27, "On the Chalk Downs," with the old timber mill seen in brilliant sunshine, away in the middle picture, the shadows from the sweeps are seen exactly as in nature, and also relatively recorded in reference to the rest, by which we mean to the clouds, and the breezy air—an impression adroitly secured by this print; and yet the shadows are very definite and quite distinct as they should be. The next study, No. 28, "Stonehenge," exhibits precisely the same good judgment, giving the texture of the ancient monoliths against the sky, unnumbered by over-accutement of the foreground. No. 3, "White Domes," from the Court of Honour at the Great White City is a silvery study in which the busy details moderated by a hazy glamour, leaving something to the imagination, which, in such a case, makes for advantage. The same buildings appear in a three-colour colotype, No. 36, by Mr. F. T. Hollyer, worthy of praise, the colour being merely suggested. "The House on the Marsh," No. 50, with the barn and big trees amidst the wild profusion of overgrowth in front, is a notable study for the appreciation of different values. No. 63, "St. Ives Harbour," deserves recognition. The old church tower and harbour wharf walls both subordinated to the sharp prominence and scale portrayed in the front by the bowsprit of a passing craft. Mr. Warburg's silhouettes are really good, with their slightly toned edge and precise preservation of outline, as in Nos. 39 and 40, illustrating fancy studies of children. The photo-relief in plaster of the interior of the chapel, Ile St. Honorat, silvery, is sufficiently far from success to be avoidable, and it is also by no means effective (No. 66). "Notre Dame de Vie," seen amongst the cyprines (No. 73) is, on the other hand, a capital picture of an architectural kind, finished on rough paper with somewhat of the texture of a water-colour, showing the deep, long-lined shadows of the trees in front of the arched portal of the church, with its square campanile sort of tower, surmounted by a conical roof. We also noted "The Barley Field," and "Cromer Pier," two totally different subjects handled in opposite ways and suitable to the silver print, like delicacy of the lighter prints are supplemented by silvered frames, while the more or less appropriate style of mounting has become an art of itself, not always sufficiently subordinated to the photographs, judged and valued as such. Mr. Warburg's work is far from being stereotyped, and he obtains most interest, not only by his varied methods, but by his keen choice of subjects and good points of view.

The Blaina and District Cottage Hospital is about to be considerably enlarged from plans, etc., by Messrs. Johnson, F.R.I.B.A., architect, Aberystwyth.

The boards of guardians for Derby, Gasford, Chesterfield, East Retford, Mansfield, Newark, and Southwell are combining in a scheme for providing accommodation for feeble-minded and epileptic cases on the site, together with erecting the equipment of the institutions, which will accommodate 200 persons, will approximately cost £20,000.

The award of the arbitrator in connection with the arbitration between the Southampton Harbour Board and the Tilbury Dredging Company, arising out of the dredging contract carried out by the Company, has been issued. It states that the award of the arbitrator is £11,784 9s., and that the cost of the arbitration is £231 13s. 6d.

A new church is about to be built for St. Ann's parish, Belford, between Belford and Milnrow, from plans by Mr. R. Bassnett Preston, A.R.I.B.A. The church will consist of nave and two aisles of four bays, with clerestory above, and chancel flanked by an organ-chamber on the north, and a sacristy and choir vestry on the south. There will be a semicircular baptistry at the west end and a tower at the south-west angle rising to a height of 60ft. The style is a simple treatment of Late Decorated. The church will accommodate 352 worshippers, and will cost about £33,000.

We reproduced Mr. Warburg's very fine photograph of this old chapel in our issue of June 26, 1891, taken from the same negative as this relief; but we could scarcely recognise it in this exhibit.



ENTRANCE LODGE, PILKERRO, FORFARSHIRE, N.B.—Sir R. S. LORIMER, A.R.S.A., Architect.

MODERN COTTAGE ARCHITECTURE.*

On the top of the wastepaper-basket, as we write, he two of the most recent shilling shockers of the too familiar, but feeble and fantastic, type which are meant to guide the pilgrim in search of the "Ideal Home" to the office of the architect lying in wait for clients. Why else they can be published goodness only knows. Why the "This style complete, from £75 upwards" cottage-architect does not tumble to the idea that it is a little late in the day to spread this sort of net in the sight of any bird it is difficult to conceive. Why, indeed, *should* possible clients try this skumble-skamble stuff when there are reliable books written by competent architects who have not only done good work themselves, but *know* good work when done by others, and fairly and honestly praise it, so that the intending building-owner may take his reasonable choice of best work by the best men?

That, anyhow, is the kind of book of which Mr. Batford has just published a much-needed second edition, and which, since its first appearance in 1904, has been regarded as a standard work of its class. It is not a mere collection of designs and sketches gathered together haphazard without regard to purpose, accommodation, or cost, but consists of a carefully-selected series of views and plans of buildings of one particular class utilizing local materials. This choice of subjects has been made from many country districts, and the work shown has for the greater part been carried out by architects whose reputation is deservedly associated with the best achievements of English Domestic architecture.

The accommodation afforded by the numerous types illustrated, as shown in the plans with the text, is very varied, and being the work of men of distinction, a wide range

of design is insured, embracing single cottages, cottages in pairs and in rows, gardeners' cottages, bailiff's cottages, weekend cottages, a nurse's cottage, a doctor's cottage, a cottage hospital, and a cottage home, lodges, gate-entrances, etc., built in stone, brick, and half timber, with roofs in thatch and tiles, and walls tile-hung or roughcast, every variety of treatment in fact being graphically represented.

The plates in the first edition consisted of drawings only, whereas in this a number of specially-taken photographic illustrations have been introduced so as to show the actual effect of the works when executed, with their gardens and surroundings. The value of this edition is still further increased by the inclusion of fifty-two fresh examples, thus bringing up the total number of illustrations to 127 as compared with fifty-five in the previous edition. Every effort has been made to include representative designs of some of the latest and best types of cottage-like buildings, choice being made of many different subjects by specialists for this class of building, amongst whom figure such well-known names as those of Sir Aston Webb, C.B., R.A.; Sir Ernest George, A.R.A., and Venetia, F.F.R.I.B.A.; Sir R. S. Lorimer, A.R.S.A.; Walter H. Brierley, F.S.A.; Walter Cave, F.R.I.B.A.; E. Gay Dawber, F.R.I.B.A.; Geoffrey Lucas, F.R.I.B.A.; E. L. Lysons, F.R.I.B.A.; Mervyn E. Macartney, F.S.A., F.R.I.B.A.; E. J. May, F.R.I.B.A.; Oswald P. Milne; Ernest Newton, A.R.A.; Niven and Wigglesworth, F.F.R.I.B.A.; A. N. Prentice, F.R.I.B.A.; Reid and MacDonald, F.F.R.I.B.A.; H. S. Goodhart Rendel; R. Weir Schultz; Leonard Skoks, F.R.I.B.A.; Edgar Wood, F.R.I.B.A.; and the editor, who in his introductory essay discusses the conditions of modern cottage building, giving useful hints with practical details of planning, arrangement, and fitting generally, adding some analytical notes on the design and planning of the subjects illustrated.

Mr. B. T. Batford points out—and all who are sick of so much of that sort of thing will

thank him for it—that this book is not disfigured by manufacturers' advertisements interspersed throughout its pages. He believes that those who buy his publications would not like to see the volume spoilt in this way, and would gladly give the small extra sum that may be necessary in consequence, so as to have a book that is always pleasant to handle and delightful to look through. So do we.

The increasing desire for week-end cottages, cottages for estates, lodges, etc., and the urgency of the problem of housing beyond the limitation of urban districts will, we believe, call for many subsequent editions of this book. We sincerely trust further editions may keep the same high level as the illustrations given in the eighty-three plates, and the numerous others embodied in the text. We give two of these, one the Entrance Lodge at Pilkerro, Forfarshire, N.B., by Sir R. S. Lorimer, A.R.S.A., and the other of the "Fox and Pelican," Grayshott, of which Messrs. Read and MacDonald were the architects.

To the man of property, the municipal authority, or the man of comparatively small means but good taste, who cannot abide "garden city" atrocities, we heartily commend this book. Each and all will find, according to their needs, real help.

BUILT-IN VACUUM CLEANING IN MODERN BUILDINGS.

Only a few years ago vacuum cleaning was an infant industry. The readers of this paper will remember the interest and curiosity which was aroused by the early installations of suction-cleaning systems in some of the great Metropolitan hotels, yet in less than a decade suction cleaning, in one form or another, has become the accepted and practically the only accepted method of cleaning buildings of every description. No house can really be considered modern and up-to-date which is not piped for vacuum cleaning. And the architects and builders should bear in mind

**Modern Cottage Architecture*. Illustrated from designs by Sir Ernest George, A.R.A., and Venetia, F.F.R.I.B.A.; Sir R. S. Lorimer, A.R.S.A.; Walter H. Brierley, F.S.A.; Walter Cave, F.R.I.B.A.; E. Gay Dawber, F.R.I.B.A.; Geoffrey Lucas, F.R.I.B.A.; E. L. Lysons, F.R.I.B.A.; Mervyn E. Macartney, F.S.A., F.R.I.B.A.; E. J. May, F.R.I.B.A.; Oswald P. Milne; Ernest Newton, A.R.A.; Niven and Wigglesworth, F.F.R.I.B.A.; A. N. Prentice, F.R.I.B.A.; Reid and MacDonald, F.F.R.I.B.A.; H. S. Goodhart Rendel; R. Weir Schultz; Leonard Skoks, F.R.I.B.A.; Edgar Wood, F.R.I.B.A.; and the editor, who in his introductory essay discusses the conditions of modern cottage building, giving useful hints with practical details of planning, arrangement, and fitting generally, adding some analytical notes on the design and planning of the subjects illustrated. London: B. T. Batford.



THE "FOX AND PELICAN," GRAYSHOLT.—READ AND MACDONALD, Architects.

the further fact that no building should be piped with piping less than 2½ in. in diameter. In a recent issue of "Keith's Magazine" the following statement is made:

"There can be no question but that the low-pressure machines are to be the generally-accepted type for the future, as they are capable of performing vastly greater service than the high-pressure machines with small tools and limited pipe capacity. Moreover, they are simple in construction, they require a minimum of power, and are economical of up-keep and operation."

The earlier types of vacuum-cleaning systems were almost invariably of high-pressure design; most of them derived their power from air pumps of the diaphragm pattern, which are necessarily complicated. This same idea was applied to the manufacture of most of the so-called portable-cleaning systems. However effective the high-pressure systems may be in the creation of vacuum, it has already been demonstrated that this method is not desirable.

In a test conducted in the city of Detroit, Mich., under the auspices of the School Board of that city, and by a board of disinterested mechanical engineers of international reputation, the unanimous verdict was in favour of a low-pressure, large-area system of stationary air-cleaning.

One such system consists of a powerful centrifugal fan, which can be located in the basement of the building, and which is exceedingly simple, having no complicated valves or diaphragms. A standpipe 2½ in. in diameter connects this machine with the various floors where the hose may be attached at convenient openings. The large area of the tools used in this system is capable of removing an enormous volume of air per minute, carrying with it all the dust and dirt and depositing it in an airtight receptacle in the basement. The dead air, with its impurities, is exhausted into a flue connected with the chimney.

Piping of this diameter is ample to allow the free passage of articles which would clog the ordinary pipes, and also to completely

change the air in the room that is being cleaned.

It is only a matter of time—and we believe it will be a matter of very limited time—before every new house will be piped for low-pressure vacuum cleaning, as certainly as it will be equipped with stationary plumbing, heating, and lighting systems. Thousands of buildings, already occupied, are being equipped with this system of cleaning every year. The only objection which has been advanced against this method of cleaning in the past, especially as applied to buildings of moderate cost, has been its expense. This argument is no longer valid, as the average home can be fully equipped with the most approved system of modern air cleaning at a cost of no greater than that required for a good heating plant.—*American Carpenter and Builder.*

FRESH DISCOVERIES IN EGYPT.

A lecture on the year's work of the British School of Archaeology in Egypt was given by Professor Flinders Petrie at University College, Gower-street, on Thursday last week. In its results the year's work had been, the lecturer stated, one of the most successful they had ever had. He had worked at three different centres—Heliopolis, Memphis, and Tarkhou, which was about 35 miles south of Cairo. At Heliopolis, which had been deserted since the Persian invasion in 525 B.C., the top surface of the site was dated by the pottery to the 6th century B.C., and there was scarcely a trace of the Ptolemaic, Roman, or Arab ages. The temple enclosure, three-quarters of a mile long, was surrounded by two great walls, each 40 ft. to 50 ft. thick. In the north-west corner was a fort, also of massive brickwork. The great surprise, however, was the finding of an earthen fortress of the same type as that at Tell el Yehudiya, which he discovered in 1906, and attributed to Hyksos. They found here, near the well-known obelisk, many pieces of another obelisk erected by Thotmes III., and reinscribed by Rameses II.

The eastern gateway of the whole temple was also found, and fragments of inscriptions of ten different kings. At Memphis a gigantic sphinx of alabaster had been found. It weighed about eighty tons, and belonged either to the Eighteenth or to the Nineteenth Dynasty, about 1300 B.C. It would be set up again this summer, and would remain one of the sights of Memphis, like the great Colossus. At the north gate of the Temple of Ptah another sphinx, carved in red granite, and inscribed by Rameses II., had been discovered. Near by was a group in red granite, representing Rameses II. and the god Ptah standing. This weighed about nine tons, and would be sent direct to the Ny Carlsberg Museum, Copenhagen, as it was Denmark, and not England, that provided for the excavation of Memphis. Some day museums in England might have spirit enough for such work. At Tarkhou a large cemetery had been found. It dated from the earliest historic age down to the Pyramid Period. The special feature of the cemetery was the extraordinary preservation of both woodwork and clothing. Pieces of house-timber were found reused in the construction of the coffins. One of the coffins, made of basket-work (it was a hamper of large size) has been carried up by hand to the Cairo Museum. Wooden trays, bed-frames, a large quantity of pottery, some three hundred alabaster vases and dishes, and copper tools were also found. The work was carried out by the students of the School, Messrs. Mackay, Wainwright, Engelbach, and Elverson, working with Professor Flinders Petrie. Mrs. Petrie made the drawings, and Mr. Lawrence, of Carmelish, assisted in the excavations. Many of the discoveries will be exhibited in London during June.

The block of co-operation dwellings for labourers in Bevington-street, Liverpool, the foundation-stone of which was laid in November, 1910 by Mr. John Burne, the President of the Local Government Board, is fast approaching completion. The formal inauguration of the buildings will take place on June 14.

PROVISIONAL LIST OF WORKMEN IN THE INSURED TRADES. (SIXTH SCHEDULE)

THE BUILDING TRADES.

It has been represented to the Board of Trade that it would be convenient to those interested in the Board could publish at once lists of occupations which, as at present arranged, they consider to be included in the insured trades specified in the Sixth Schedule of the National Insurance Act.

It is clear, however, that the Board of Trade have no power to give any binding decision as to the occupations included in the schedule. Such decisions are by Section 91 (1) of the Act to be given by the umpire, an independent officer appointed by the Crown. A copy of the regulations as to the procedure to be adopted to obtain a decision from the umpire is attached as an appendix. Any employer, workman, or any person acting on their behalf, desiring to obtain such a decision should make application upon a form (U. 1) obtainable at any labour exchange or from the Board of Trade, Central Office for Labour Exchanges and Unemployment Insurance, Queen Anne's Chambers, London, S.W.

The publication of the attached lists is made with a view to directing attention to the matter, so that representations may be made to the umpire with the minimum of delay as to any particular occupation which may be thought to have been erroneously included or excluded. They must not be regarded in any way as authoritative or restrictive.

For the purpose of reference the exact provisions of the Sixth Schedule of the Act are given at the head of each list of workmen in the trade or trades concerned. Occupations of similar designation in trades other than those specified in the Sixth Schedule of the Act do not come within the scope of the compulsory scheme.

Attention is directed to the provisions of Section 107 (2) of the Act, the effect of which is that "In determining any question as to whether any trade in which a workman is or has been employed is an insured trade or not, regard shall be had to the nature of the work in which the workman is engaged rather than to the business of the employer by whom he is employed. Thus, a bricklayer employed as a labourer by a gas company would be an insured worker, although the manufacture of gas is not an insured trade; on the other hand, a cook could not be insured even though he was being employed by a builder or contractor.

Section 104 of the Act gives the Board of Trade power to make special orders for the extension of 1) any occupation which appears to them to be common to insured and uninsured trades and ancillary only to the purposes of an insured trade, and 2) any occupation which appears to them to be an occupation in a business which, though concerned with the making of parts of the preparation of materials for use in connection with an insured trade, is mainly carried on as a separate business or in connection with trades other than insured trades. The Board have under consideration the making of special orders in respect of certain classes of workmen who might otherwise be liable to compulsory insurance against unemployment, e.g., Carpenters, upholsterers employed in connection with the decoration and equipment of buildings or ships, boats, and other craft. Representations to the Board, and as to any other matters that should be dealt with by special orders should be made to the Board of Trade, Westminster, S.W.

BUILDING.

Sixth Schedule, sub-section (1).

Buildings that is to say the construction, extension, repair, decoration, or demolition of buildings, including the manufacture of buildings of wood of a kind commonly carried on in building workshops or yards. This sub-section would appear to include the following classes of workmen when so engaged:

Architects, draughtsmen, bricklayers, labourers, masons, plasterers, painters, and decorators, carpenters, joiners, and fitters, and others.

excavators, expanded metalworkers, ferro-concreters, fitters of all kinds, floor-layers, gilders, glaziers, housecarpenters, joiners, labourers (general, or to special trades), lathers, masons, mosaic workers, oven-builders, painters, paperhangers, parquet-layers, paviors, plasterers (cold and hot), plumbers, plumbers' mates, polishers of all kinds, roofers, roofers' mates, roofers' assistants, slaters, smiths, smiths' strikers, steel-keepers, stokers, stone-layers, stove-layers, tile-layers, tilers, wallers, whitewashers, wire-workers.

CONSTRUCTION OF WORKS.

Sixth Schedule, sub-section (2).

Construction of works: that is to say, the construction, reconstruction, or alteration of railroads, docks, harbours, canals, embankments, bridges, piers, or other works of construction. This sub-section would appear to include the following classes of workmen when so engaged:

Applainers, belmen (divers), bulldozers, barers, bricklayers, carpenters, cementers, concreters, framers of divers, electrical workmen, engine-cleaners, engine-men, erectors, excavators, fenders, fitters of all kinds, gangers (engaged in manual labour), greasers, hammermen, holders-up, joiners, labourers (general, or to special trades), millers, millwrights, press, and other machinists, locomotive drivers, masons, moulderers, motor-men, haxies, saw-drivers, navvies, pile-drivers, pipelayers, pipe-layers, pitchers, platers, platelayers, plumbers, plumbers' mates, pump-men, red-liners, riveters, steelers, scaffolders, scaffolders' mates, smiths, strikers, splitters, staving-hands, stokers, timbermen, turners, wallers, well-sinkers, wheelmen.

SAWMILLING.

Sixth Schedule, sub-section (7).

Sawmilling (including machine woodwork) carried on in connection with any other insured trade, or of a kind commonly so carried on. This sub-section would appear to include the following classes of workmen when engaged on work in connection with any other insured trade, or of a kind so commonly carried on:

Backers-up, dressers-off, feeders, joiners, labourers (general or to special trades), machinists of all kinds, measurers, millers, sandpaperers, sawyers of all kinds, saw-sharpeners, toolmakers, turners of all kinds.

UNEMPLOYMENT INSURANCE (UMPIRE REGULATIONS).

Regulations Made by the Board of Trade Under Section 91 of the National Insurance Act, 1911, with Respect to Decisions by the Umpire on Questions Whether Contributions are Payable.

The Board of Trade, in pursuance of Section 91 of the National Insurance Act, 1911, hereby make the following regulations:

1.—(i) If any workman or the employer of any workman desires to obtain a decision by the umpire appointed under Part II. of the National Insurance Act, 1911 (in these Regulations referred to as the Umpire) as to whether contributions under that part of the Act are payable in respect of that workman or of the class of workman to which that workman belongs, or if the Board of Trade desire to obtain such a decision as respects any workman or any class of workmen, the workman, or the employer, or the Board, as the case may be, may make an application for the purpose by sending a written notice to the Umpire, or by delivering to the Umpire an application in the form set out in Schedule to these Regulations. (ii) An application under these Regulations may be made on behalf of any workman or employer by any association of workmen or any association of employers of which he is a member, and may be made on behalf of the Board of Trade by any officer of the Board authorised by the Board to that effect.

2.—(i) An application may be made to the umpire at any time for the revision of any decision previously given by him on any application under these Regulations. Any such application must be made by some person by whom the original application could have been made, and shall contain a statement of any new facts or other grounds on which the applicant claims that the decision ought to be revised.

2.—If the umpire on the consideration of any application under these Regulations is of opinion that the application is frivolous, or raises a question which does not admit of reasonable doubt, he shall give his decision on the application forthwith; but if he is not so of opinion, he shall reserve his decision, and

subject as hereinafter provided, give public notice in the Board of Trade Journal, and in such other manner as he thinks fit, of the nature of the application and of the date, not being less than fourteen days after the date of the notice, on or after which he proposes to give his decision on the application: Provided that where the only question raised in the application is whether any particular workman belongs to a class of workmen with respect to whom it has been decided, or with respect to whom, in the opinion of the umpire, there is no reasonable doubt, that contributions are payable, it shall be sufficient if, in lieu of public notice, notice is given to the workman and his employer and the Board of Trade.

3.—If before the date specified in the notice any representations with reference to the application are made in writing to the umpire by, or on behalf of, any workman or employer appearing to him to be interested, or of the Board of Trade, the umpire shall take those representations into his consideration, and the umpire may at any time before the said date require any persons to supply him such information in writing as he thinks necessary for the purpose of enabling him to give a decision. All such representations and information shall be open to inspection by any employer or workman appearing to the umpire to be interested, or any persons authorised in that behalf by any such employer or workman or the Board of Trade.

4.—Any persons claiming to be interested may apply to the umpire to be heard by him orally in reference to any application under these Regulations, and the umpire may, in any case for which he thinks it desirable, require the attendance of any person before him to give oral information on the subject of any application.

5.—The umpire shall give notice of his decision to the applicant, and to the Board of Trade, and the Board shall publish the decision in such manner as they may think fit.

6.—Subject to the provisions of these Regulations, the umpire may determine his own procedure.

7.—Where any question is required to be referred to the umpire under sub-section (6) of Section 101 of the Act, the question shall be referred to the umpire by means of an application for the purpose made by the applicant before whom the question arises, in which the question arises are pending, and in any such case the foregoing provision of these Regulations shall apply as if the application were an application by a workman or an employer.

8.—The umpire may, with the consent of the Board of Trade, appoint any person to act as deputy umpire in the case of the unavoidable absence of the umpire, and the Board of Trade may in the case of the incapacity of the umpire appoint any person to act as deputy umpire during the incapacity of the umpire.

9.—(i) These Regulations may be cited as the Unemployment Insurance (Umpire) Regulations, 1912.

(ii) These Regulations shall come into operation on the 1st day of June 1912.

(iii) As respects workmen employed by or under the Crown, these Regulations are subject to any Order in Council that may hereafter be made under sub-section (3) of Section 107 of the Act.

H. LLEWELYN SMITH,

Secretary to the Board of Trade.

The annual meeting of the Association of Water Engineers is to be held at Cheltenham on June 6, 7 and 8.

The Southport Art Committee have selected the following pictures out of their annual spring exhibition for purchase for the permanent collection—viz., "The Lark" by George Henry, A.R.A.; "Grange by Derwentwater," by R. Gwelo Goodman.

Copies of a form on which these particulars can be submitted are to be obtained at any Labour Exchange or at the Board of Trade, Central Office for Labour Exchanges and Unemployment Insurance, Queen Anne's Chambers, Westminster, London, S.W. The office of the Umpire is at 47, Victoria Street, Westminster, London, S.W.

CURRENTE CALAMO.

We are glad to give with our report of Mr. Cram's paper at the R.I.B.A. an illustration of a design for a church interior by his firm, which was shown at an exhibition of the Philadelphia Chapter of the American Institute of Architects and the T Square Club. We wish the report itself did justice to Mr. Cram's paper; but we are, as usual, bound by the Institute "limit." It is not much of an encouragement to distinguished visitors to instruct or interest their English brethren when the professional papers are thus shackled, and Mr. Cram's paper suffers by condensation because there was not an inch of padding in it. Every word told, and, latish as it was when he finished, his hearers would willingly have enjoyed for another hour what all felt was in many respects the most pleasurable meeting of the session, thanks to its intrinsic worth and the charm of delivery which enhanced the value of Mr. Cram's paper.

The Birmingham City Council, which certainly no one can accuse of being in a hurry over its first experiment, on Tuesday resumed consideration of the report of the Town-Planning Committee upon the scheme for the Harborne and Quinton area. The scheme proposed a limitation of twelve houses to the acre, and Mr. Walthall moved to substitute fifteen, on the ground that the smaller number would prevent the erection of cheap houses for the artisan class. Mr. Cornish seconded the amendment, which was opposed and was defeated by 91 votes to 5, three members not voting. We are glad of that. Twelve houses to the acre is a larger number than allowed in any of the "garden city" attempts. It is better than the ordinary eighteen, of course, and it is the business of progressive town councils to give the Act its fullest scope. In its general features the plan seems a fairly good one.

"The proposal to license architects and allow only licensed men to work on jobs of 2,000dol. or more would be a hardship on several thousand builders of Detroit," declares Robert G. McDonnell, a builder of that city. "Such an association would be a trust, nothing less. In common with hundreds of other builders in Detroit, I prepare the plans for a great many of the buildings I erect. Under this proposed License Act I would be barred from doing that, except on jobs of under 2,000dol. I would be forced to employ architects on all other work, and the consumer will pay the extra money. I consider myself competent to draw up such plans as I prepare, and there are hundreds of others, not architects, who are in the same position."

A petition from the architects of Detroit is, nevertheless, to be presented to the Council, asking for a license ordinance. It is proposed that any architect or architects desiring to establish an office in Detroit shall obtain a license. Except in the case of architects who have been practising in Detroit for one year preceding the date of the adoption of the ordinance, the license is to be issued only after the applicant has passed an examination, to determine his ability to prepare working drawings and specifications for various types of buildings, his work to conform with the city's building laws. Applicants to whom licenses are issued will pay a fee,

tentatively fixed at 25dol., and an annual fee of 10dol. for renewal of the license. Possibly, if registration is delayed much longer, some of our own municipalities will go to Parliament for similar powers.

It is wonderful what a wealth of illustration our own trade affords to the orator and the publicist. So copious is the store of imagery and allusion that it is, perhaps, hardly wonderful that some speakers get their references wrong. Still, we thought Mr. Charles F. G. Masterman "knew his Bible" better! Last week, twice—once in the House of Commons, and on Friday at Chester—he said that the Government were fighting in Parliament "as the people built the Temple of old," with the trowel in one hand and the sword in the other. Perhaps he was thinking of the rebuilding of the wall of Jerusalem by Nehemiah, when "every one with one of his hands wrought in the work, and with the other hand held a weapon; for the builders, every one had his sword girded by his side, and so builded"? Temple building is hardly the work of this Government just now!

Robert Henri, the artist, was talking at the annual exhibition of the Philadelphia Academy of Fine Arts about certain old masters. "Take, for instance," he said, "Morland. The illustrious and indefatigable Morland painted in the course of forty years 4,000 pictures. And of these—" Mr. Henri smiled his quiet and intelligent smile. "Of these," he continued, "no less than 8,000 are still extant." And a good many of them still on this side of the water, we believe, so American millionaire buyers should seize the chance while they still go fairly cheap!

We think the Aldershot magistrate rightly dismissed the charges on Monday against a photographer who had been arrested for "intruding" in War Department land for the purpose of taking pictures during the Royal visit. The magistrates came to the conclusion that although under the Military Lands Act, 1892, the Secretary of State could make by-laws for prohibiting all intrusion on military lands, they did not think on this special occasion the defendant was an intruder, nor did he cause any obstruction. Therefore the officer had no authority to warn him off. In a similar case against another photographer the military authorities offered no evidence. It was stated that the military authorities had asked Press photographers what they were prepared to give to military charities for the monopoly of taking pictures during the Royal visit. If so, in our opinion it was unwise and unfair. Other Government departments of late seem to us to have acted similarly unfairly and unwisely. We applied some time since to the authorities for permission to reproduce some of the then recently-executed frescoes at Westminster; but were told the right and privilege of doing so was the copyright of a trading firm. This used not to be. Under proper regulations public property was available to all for the benefit of the public.

It is not wonderful that our own query columns from time to time declare the "failure" of asphalt, when one sees what is sometimes used as such, and at others the ignorance or carelessness with which really good material is employed. If architects

would always carefully specify asphalt of undoubted quality, such as Claridge's, as in the early days Sir William Tite did for the Royal Exchange, and would inform themselves more frequently as to its judicious application, failure would never be heard of. No better summary of useful information is available than the excellent little booklet just issued by Claridge's Asphalt Co., Victoria Embankment, W.C., which any reader can get free on application. Therein will be found valuable suggestions for the employment of asphalt for roofs, parapet walls, chimney stacks, channels, reservoirs, pavements, and flooring, and for damp-courses, foundations, etc. Tested by seventy years' experience, these details will commend themselves to all users of asphalt, and common-sense will urge the selection of Claridge's asphalt and the prompt prevention of the use of inferior substitutes.

The county council buildings for Mounthamshire, at Newport, are about to be enlarged at an estimated outlay of £6,000.

A technical institute is in course of erection at Newmarket for the urban district council. Mr. H. Z. Linnell is the contractor.

The Local Government Board has sanctioned the raising of a loan of £10,835 for the widening and improvement of Golders Green-road between the Golders Green Tube Station and Central Hendon.

Headed by Signor Marangoni, a committee is at work in Venice for the restoration, which will practically be a rebuilding of the famous chapel of the Rosary. The chapel, in addition to its artistic beauty, is a monument of historic interest, as commemorating the battle of Lepanto.

The Town Council of Buckie, N.B., have just adopted the plans of Mr. Douglass, of London, the engineer for the harbour extension scheme, giving an addition of seven acres to the water area. Messrs. Brand and Sons, of Glasgow, have for some time been executing the original extension contract, which they took at £76,591. The new extension is estimated to cost a further £37,854; addition to jetties, £2,045; embankment and reclamation, £3,341; slipway with nine berths, £6,000, making a total of £125,762.

A colossal marble statue of King Edward VII. has been placed on London Bridge, Tiverton, near the entrance to the town from the railway station. It has been executed by Mr. Harry Hems, of Exeter, as a commission from Mr. Thomas Ford, J.P., now the "Grand Old Man" of Tiverton, 94th year. Mounted upon its pedestal, the whole stands 17ft. high. The base itself is in grey Dartmoor granite, and the late King is represented in State robes. The statue is to be unveiled by the Countess of Portsmouth to-day (Friday).

Mr. Caleb J. White, the marble expert employed by Messrs. Martin and Co., of Calcutta, for the Victoria Memorial Hall, died at the hospital at Cawnpore on Friday, April 5, after a brief illness. He went out to India in October, 1910, to organise all the marble work required in the construction of the Victoria Memorial Hall, and superintended the clearing of the quarries at Makrana, and the erection of the machinery in Calcutta. Mr. White was an enthusiast in everything that concerned marble, and has visited all the principal sources of the supply. He was a native of Bristol and was for many years with Messrs. Arthur Lee Bros. He went to Hayes to manage the marble works when the firm removed there.

The Rural District Council of Flaxton, near York, proceeded at their last meeting to the appointment of a consulting engineer. The following candidates appeared before the Council, having been selected at a previous meeting: Mr. S. Needham, L.R.I.B.A., architect and surveyor, 18, Coney-street, York; Mr. E. J. Penny, M.S.A., architect, Lendal-chambers; and Mr. F. Raney, architect, 34a, Coney-street, York. Mr. Needham and Mr. Penny each received nine votes, and the former was elected by the casting vote of the chairman. Mr. Needham, who is 44 years of age, has been in practice in York since 1896, and was for nine years architect for the whole of the properties of the Tadcaster Tower Brewery Co., Ltd., and since 1906 has been valued to the city overseers of York.

QUANTITY SURVEYORS' ASSOCIATION DINNER.

The annual dinner of the Quantity Surveyors' Association was held on Monday evening at the Connaught Rooms, Great Queen-street, Kingsway, W.C. The chair was occupied by the President, Mr. C. W. Ball, M.S.A. of Portsmouth, and among the numerous company were the Lord Mayor of London, Mr. William Nicholson, Mr. George Corderoy, F.S.I., Mr. A. A. Hudson, K.C., Mr. H. Percy Boinois, M.L.C.E., Mr. Henry Northcroft, F.S.I., Mr. Alfred W. S. Cross, M.A., F.R.I.B.A., Mr. Alan E. Munby, M.A., F.R.I.B.A., Mr. H. H. Bartlett, Mr. H. Arthur Bartlett (President of the Institute of Builders), Mr. F. G. de la B. (President of the Builders' Benevolent Institution), Mr. James Wright (President of the National Federation of Building Trades Employers), Mr. H. M. Hodgson, F.S.I., Mr. T. S. Vickery, Mr. G. L. Brighton, F.S.I., Mr. T. P. Figgins, F.R.I.B.A., Mr. A. Needham Wilson, F.R.I.B.A., Mr. J. J. Ball, M.S.A., Mr. A. A. Shephard, F.R.I.B.A., Messrs. S. Chatefield Clarke, F.S.I., W. R. Hood, F.S.I., and Walter Lawrance, F.S.I. (past Presidents of the Association), Messrs. T. J. Carless and Henry Riley (Vice-Presidents), Mr. Arthur G. Cross, F.S.I. (Hon. Secretary), Messrs. T. E. Bare, E. J. Burr, J. Carmichael, C. Costigan, J. E. Davis, B. A. Elphicke, H. A. Gale, F. W. Harrison, Alan Paul, H. B. Sanders, H. T. Sayer, H. Vale, H. J. West, W. Hoffman Wood, etc.

The toast of the evening, "The Quantity Surveyors' Association," was proposed by the Lord Mayor of Leeds, who remarked that, as a member of an old firm of quantity surveyors, he might claim to be a good and practical friend of the Association, and he certainly had had considerable experience of the methods of quantity surveyors. He was glad to learn from the President that the Association was in a flourishing condition. The practical question for the Association was, he took it, to ascertain how its members could be enabled to get a living wage in the North of England the reprehensible practice still existed of architects taking out their own quantities, and he had always regarded that as unwise. The three sets of persons engaged in carrying out a building—the architect, the quantity surveyor, and the contractor—ought to be distinct and independent. Quantity surveyors were apt to unfairly sweat quantity surveyors, and, in some cases, refused to employ them at all. He had always protested on his own city council against proposals of the kind, and also against employing borough engineers and their staffs as architects. While for one he was glad to do the dunkey work for the right price, he was glad it was far better that they should fight for their own hands, and this was a work which a growing Association such as theirs was well able to undertake. As an old contractor, he would warn the members that they must look forward in the immediate future to an increase in the costliness of building operations. The trend of recent legislation, strikes in the transport and coal trades, and in those more directly connected with building, lessened hours, and he must add, the lessened output of work, all tended to raise the outlay on building works, and architects, quantity surveyors, and their clients must make up their minds that the old prices will not do. It must be provided for a rise of at least 5 per cent. on the estimates they had been accustomed to. He wished for the Association all success and prosperity.

In acknowledging the toast the President remarked that when he took office he intended for £40 to put their Benevolent Fund on a better footing. He was pleased to find that a generous response was made by members who sent him donations amounting to £75, and the number of inquirers for information from municipalities and individuals was increasing, but their professions were which did not dread a shirk of labour, and they were glad to note the amount of interest in their work. The Council had completed the revision of the Architects' Association, the principal change being the creation of a new class of associates, composed of men over twenty-two years of age not yet in independent practice,

who were required to pass an examination before being admitted. This seemed likely to be a useful extension of their work, and already young men were coming forward seeking to be enrolled in this class. They had also passed a by-law under which a member was agreed not to accept any commission for work under a public authority under the amount of £70,000 upon which less than the scheduled rate of charges was paid. The Council had a very lively discussion over this suggested by-law, but ultimately the original proposition was unanimously adopted, with but the alteration of a single word. As to the standardisation of measurements, the Council had not yet been able to publish a third pamphlet. Two had, as they were aware, been issued, and a third was now under consideration by the Council in consultation with a sub-committee from the Council of the Surveyors' Institution; he hoped this would, ere long, be brought to a conclusion. Mr. M. J. Nicholson would have observed that he was wearing for the first time a presidential badge of office, which had been presented to the Association. Upon the ribbon from which the badge was hung were bars bearing the names of the past presidents, all of whom were living, and were held in high esteem and regard. They comprised: Mr. Walter Lawrance, one of the founders of the Association; Messrs. A. J. Gidney, and S. Chatefield Clarke. Presidents came and went, but their honorary secretary, Mr. Arthur G. Cross, seemed to go on for ever, and the Council were deeply indebted to him for his invaluable help and counsel. As Mr. Nicholson had said, the Association had had a considerable increase of membership, and many other leading members of the profession were coming forward to join them. The Association was young, but it possessed enthusiasm, and it would go forward till all the quantity surveyors of empire in the kingdom had been enrolled, when it would be an influential body to be reckoned with.

Mr. H. M. Hodgson proposed the toast of "The Architects," remarking that they were their best friends. The more architects they knew, and the more they knew of architects, the better would it be for quantity surveyors. It needed no little temerity for a quantity surveyor to speak of the art of architecture; architecture was a science, was his principle, and one of the details of which it was his painful duty to remind the architects. The quantity surveyor's application of the art was almost confined to little marginal sketches when words quite failed him—(laughter)—and often to these imaginative conceptions he appended the note that they were merely rough approximations, and it was believed the architect intended. The three R's of architecture, as desired by the quantity surveyor in the buildings he had to deal with, were Regularity, Rectangularity, and Repetition. Any departure from these canons of art increased the surveyor's labours without corresponding augmentation of his fees. Anyone who could look back to what twenty years would admit that our London buildings of to-day were possessed of much greater beauty and refinement than a quarter of a century ago. Marble or stone had taken the place of brickwork in the leading thoroughfares, and if we suffered from an eruption of ferro-concrete, it was, to a large extent, devoidly clothed in marble. He hoped that in the future some controlling architectural authority would arise which would regulate our buildings, especially in regard to greater uniformity of scale and in checking the tendency to colossal proportions. The association of architects with the laying-out of clothed building estates, such as that at Hampton, must tend to improve the amenities of our suburbs.

Mr. A. W. S. Cross, responding, congratulated the Association on its rapid and continuous progress. He was glad to see that in instituting the new class of associates they had imposed an examination of entrance. He trusted that the Council would press until they had established compulsory registration, and had closed the profession to outsiders.

Mr. Henry Riley, vice-president, proposed the toast of "The Contractors," remarking

that while the quantity surveyor sought to do his duty to the client and the architect, he ought also to make sure that the contractor received his just due. No business was so disastrously affected by strikes as was that of the builder, and he had other causes for anxiety in the introduction of fresh materials and the increase of specialists and sub-contractors.

Mr. H. Arthur Bartlett, in reply, observed that it was a happy coincidence that after an interval of twenty years he had followed in his father's footsteps as president of the Institute of Builders. Strikes were very costly to the contractor, as he had to retain his staff and maintain his working plant when all jobs were at a standstill, and no interest was accruing on his working capital. Another big trouble was the development of sub-contracting. When he studied bills of quantities, he often wondered what became of the ordinary and second-rate quantities of goods, for the bills invariably specified that every man of a trade union of the best quality.

The concluding toasts were "The Visitors," proposed by Mr. S. C. Chatefield Clarke, and acknowledged by Mr. George Corderoy; and "Our Honorary Secretary," proposed by Mr. A. A. Hudson, K.C., who remarked that the president had given him away by admitting having been his pupil thirty years ago. As members of a trade union, the members of that Association would be interested in knowing that he had just been engaged in adjudicating upon a minimum wage for miners throughout an important district. A minimum wage sounded reasonable; the only classes of the community who stipulated for a minimum wage were the miners, soldiers, and sailors, and every confidence in the thoroughly reliable work carried out by quantity surveyors. When a building dispute arose, their figures were the bed-rock of facts upon which all rested. He referred to the admirable work carried out for the Association by their hon. secretary, Mr. Arthur G. Cross, who briefly responded, he said, being greeted with hearty cheers and musical honours.

OBITUARY.

The death took place on Thursday last week, at 56, Queen's Gate-terrace, S.W., at the age of seventy-one years, of Major General Edward Robert Festing, C.B., F.R.S., late R.E., formerly Director of the Science Museum, South Kensington. Born in 1839, he was a son of the late Mr. Richard Grandinall Festing. He was educated at the Ordnance School, Carshalton, and the Royal Military Academy, Woolwich, and in 1855 became a lieutenant in the Royal Engineers. He served through the Central Indian campaigns, 1857-59, and received the medal for the Mutiny. In 1864 he joined the Department of Science and Art as Deputy-General Superintendent, South Kensington, and from 1893 to 1904 occupied the position of Director of the Science Museum. He was created a C.B. in 1900.

The Local Government Board have sanctioned the borrowing by the Domestica Corporation of £25,400 for gasworks extension, this sum to include the cost of a new gas-holder.

The annual meetings of the Kent Archaeological Society will be held at the in July, Saltwood Castle, Lympne Castle, and other places of interest in the district will be visited.

New choir-stalls in oak are about to be placed in the chancel of the parish church of Tottenham. Mr. Stonebridge is the architect, and the work will be carried out by Mr. Sherratt, of Eaton Bray.

The Ellesmere Rural District Council has adopted the scheme proposed by Messrs. Berrington, Son, and Watney, of Westminster and Wolverhampton, for the water supply of Duddleson Heath, at a cost of £2,500.

The dedication of a new organ at St. Margaret's Parish Church, Leiston, East Suffolk, took place on Friday. The present instrument is well known on the spot occupied by the old one, and will cost about £600. Situated in the south transept, it is provided with an oak carved case, and the front pipes are decorated. The builder is Mr. J. J. Binns, of Leeds.

COMPETITIONS.

BEDFORD: RUSSELL PARK BAPTIST CHAPEL.—In a recent competition the designs submitted by Messrs. George Baines and Son, 5, Clement's-inn, Strand, W.C., were placed first, and they have been appointed architects for the scheme.

BURHILL: THE WHITELEY HOMES.—The trustees of the huge legacy left by Mr. William Whiteley for the purpose of providing homes for the aged and deserving, poor recently purchased an estate at Burhill, near Weybridge, and appointed Mr. Walter Cave, F.R.I.B.A., as assessor in a limited competition for laying out the site and erecting houses thereon. Upon Mr. Cave's recommendation the trustees have now appointed as architect Mr. R. Frank Atkinson, F.R.I.B.A., of 8, Sackville-street, W.

HALE TOWN PLANNING COMPETITION.—Since we published the notice dated 29th ult., the Council of the Manchester Society of Architects say that the District Council have reconsidered their decision, and have decided to revise the conditions in respect to the three points named, viz.: To issue a plan of the district for the competitors, with particulars up to date, of houses, sewers, and main levels. To delete the clause in their conditions asking for the architect's inclusive fee for subsequent work. To appoint a competent adviser, to be approved by the Council of the Manchester Society of Architects, to assist the Committee. An extension of time for sending in plans will be given. The Council consider these conditions as revised are satisfactory. Their notice of the 29th ult. is therefore withdrawn.

MANSFIELD.—The limited competition recently held for a U.M. Church, Schools, Institute, and Caretaker's House, has been settled in favour of Messrs. George Baines and Son, 5, Clement's-inn, Strand, W.C., and the first section of the scheme is estimated to cost £4,700, is to be at once proceeded with.

PORTLAND.—In the competition for new offices for the urban district council, Portland, Dorset, seventy-seven architects' designs have been sent in. Mr. A. Needham Wilson, of 28, St. Martin's-lane, Cannon-street, E.C., has been appointed assessor. Premiums of £50 and £10 respectively were offered.

WELSH KING EDWARD MEMORIAL.—The executive committee of the King Edward Welsh National Memorial for the Prevention and Abolition of Tuberculosis, at their last meeting held at Westminster, received a report from the treasurers that the total promises and donations amounted to £201,740. It was decided to advertise for designs from architects, and sub-committees were appointed to go into the question of sites.

Mr. Pitkeathley has been appointed electrical engineer-in-chief of the temporary works for the Imperial capital at Delhi.

The Otley District Council have adopted a proposal to ask the Local Government Board for authority to prepare a town-planning scheme.

At a cost of over £20,000, a new factory is to be erected in Vauxhall-walk, Lambeth, for Schweppes Ltd., according to the design of Mr. Arthur F. Briggs, 9, Queen Victoria-street.

Messrs. Gordon and Gunton, Finsbury House, Bloomsbury, have been appointed architects to the Haver Borough Council in connection with the erection of buildings, estimated to cost £25,000, for the extension of the electricity works.

Mr. F. H. French has been appointed borough surveyor of Harwich, at a commencing salary of £1,000, with annual increments of £16 5s. to a maximum of £240 per annum. Mr. French is to commence his duties on June 6.

At Tuesday's meeting of the Birmingham Corporation, the town planning committee obtained the approval of the council to their taking preliminary steps to promote a scheme for North Yardley, the chairman, Mr. Neville Chamberlain, accepting an amendment to consider the desirability of including Stetchford in the scheduled area.

Correspondence.

THE FINANCIAL POSITION OF THE R.I.B.A.

To the Editor of the BUILDING NEWS.

SIR,—“A Well-Wisher” has raised points that should be seriously put to candidates for the new Council.

I, too, have been checking off the accounts of other societies, and I think the establishment charges at Conduit-street are—I won't say wasteful, but very high in proportion to income.

I suggest that it would be the right thing to do to move for a special committee to inquire into this matter.—I am, etc.,

A PROVINCIAL ARCHITECT.

SIR,—I should say “A Well-Wisher” does not realise the work that is done by the staff of the R.I.B.A.

I admit the proportion of salaries to income is high; but the gross total would probably be very little more if the membership were doubled.

I am inclined to agree with “A Well-Wisher” in regard to the stiff examination fees.—I am, etc.,

SENEX.

THE R.I.B.A. ELECTIONS.

SIR,—Regularly with the advent of the R.I.B.A. Council and Committees election each year, there appear in the columns of the professional Press pathetic letters from gentlemen asking for instruction and help in filling up their voting-papers. Such a one has appeared within the last fortnight, reiterating the same old complaint in the following terms:—

The time will soon arrive again when the members of the Institute will have to elect their representatives on the Council and various Committees for the coming year, and bearing in mind the difficulties which every one has in deciding for whom to vote, I venture to inquire if something cannot be done to assist him in his election.

I think I am safe in saying that to most members many of the candidates—particularly new ones—are comparatively, if not quite, unknown; or, if known, their ability, work, and experience are not. It must be remembered that the architect gains his knowledge of his professional fellows chiefly by means of the building journals and the various particulars of buildings they publish. Now, there are many men of large practice whose names never seem to get into print and whose drawings are never published; it follows then that these men are probably unknown to their brother architects, and when, as sometimes happens, they are listed among the candidates, they invariably fail to receive sufficient support for election, notwithstanding that their experience is far greater than many of those who do manage to gain a seat.

May I, Sir, offer the suggestion to distressed voters that the careful and regular perusal of the accounts of business meetings published in the R.I.B.A. Journal would prove a much greater help in selecting candidates than the mere haphazard voting for a member because he happens to have a penchant for seeing his work continuously illustrated in the professional journals?

I think that many, both on the Council and off, must agree with the entire truthfulness of the statement above quoted, and I am convinced it is a matter which should be inquired into with a view to adopting some procedure to more satisfactorily meet the needs of these progressive days.

I believe there exists an almost unanimous feeling against individual canvassing in a body such as ours; but this does not prove the case pro or contra. In the case of Parliamentary candidates—and I believe I am right in saying, in other of the professions (closed and otherwise)—canvassing is adopted as a matter of course, without

(where everyone is on the same footing) any great harm ensuing. Personally speaking, I can see very little difference between canvassing openly and canvassing by such means as writing letters to the professional Press just previous to the elections by gentlemen who are candidates for the same. The professional Press of the last few weeks provides some delightful instances of what can be done in this way.

The writer of this letter is also a candidate, but in his case he desires to carefully retain his anonymity, and therefore signs himself—

MEMBER R.I.B.A.

THE FIRST LIGHT-AND-AIR CASE ON RECORD.

SIR,—The following, extracted from Finlay's “History of the Byzantine Empire,” must surely be the first “light-and-air case” on record.

“A poor widow accused Petronas, the Emperor's brother-in-law, an officer of talents and courage, of having, in violation of law, raised his house high as to render hers almost uninhabitable from want of light and air. . . . Theophilus ordered the grievance to be redressed; but the complaint was subsequently reiterated, and the Emperor discovered that his brother-in-law had disobeyed his decision. He now gave orders that the newly-built house should be levelled to the ground, and condemned Petronas to be scourged in the public highway.”

One would imagine that the drastic nature of the punishment must have had a wholesome influence in preventing the infringement of this by-law.

Theophilus, the Emperor referred to, reigned from A.D. 829 to 842.—Yours, etc.,

DUNCAN W. CLARK.

3, High-street, Colchester

THE DECADENCE OF BRITISH ARCHITECTURE.

SIR,—When I wrote the letter which appeared in the BUILDING NEWS of May 10, I had, of course, no idea that what I was advocating had already been embodied “as a definite policy of the Architectural Association Schools in the future”; or that “the Council of the Royal Academy” had “extended practical encouragement to the Architectural Association students who are qualified to go to the Royal Academy.”

I am extremely glad to have thus induced the Architectural Association officially to make public such good news, and to tell us that the competition classes will be curtailed at Tufton-street from four to three years. The pressure on the classroom accommodation will thus be modified and the standard of efficiency will be raised from the art side, seeing that before students can go forward to the Royal Academy School their qualifications will be tested. Those who fail must be relegated to avocations more congenial to their personal capacities and talents. What alone will be a great gain to all concerned. I can only express my gratification at this exceedingly satisfactory reply from the hon. secretary of the Architectural Association, Mr. H. Austen Hall.

On the other hand, I must venture to urge, as I have already suggested, that the Academy should see what developments can be made towards the more efficient equipment of their architectural school, and, speaking with all reservation, I can only say my idea of this necessity arose from the results year by year, as shown by the Students' Exhibition of designs at Burlington House. However, I have no doubt, with this forthcoming augmentation of technically efficient students from Westminster, that suitable and corresponding improvements will be seen to. We can really entertain no doubt as to the basis of the Association's personal association and intimate experience on all these matters of Sir Austen Webb and Professor Reginald Blomfield, while I am sure that the other architect “members”—Mr. T. G. Jackson (the treasurer), Mr. John Belcher, Sir Ernest George, and Mr. Ernest Newton—will aid to the full with their know-

ledge and influence, which will be also further encouraged on all occasions by many others in the Academy, like my friend Sir George Frampton, who knows so fully how sculpture concerns the advance of architecture, and who has studied in Paris and taught so well in London.

I am indebted to Mr. Hall for what he has said about the future of the Royal Architectural Museum, and I sincerely second the expressed intention of the Council to augment and complete the collection with Classic and Renaissance examples. In my time we tried to do that, but our efforts failed to obtain sufficient support. Now that the schools at Westminster and Piccadilly are to be practically affiliated, this may, I hope be possible, and certainly the unique collection at Tufton-street, ought to prove more useful than ever.—I am, etc.,

MAURICE B. ADAMS.

CLARENDON HOUSE, PICCADILLY.

SIR.—In reply to your correspondent's letter in your last issue, an elevational perspective of Clarendon House is given in "Londina Illustrata," published by Robert Wilkinson, of Fenchurch-street, 1819. The mansion was sold by Clarendon to George Monk, the Duke of Albemarle, from whom it derived the denomination of "Albemarle House"; but the Duke died on January 3, 1699-70, when the property fell for a brief time into the possession of the Duke of Ormond, who, on his way to this place in 1670, was outraged by Colonel Blood, who dragged his Grace out of his coach, intending to hang the Duke at Tyburn. Albemarle had, however, sold the property before he died, and "Albemarle Buildings," as they were called, were built in the streets subsequently formed on the property. (See "Styrpe's Stow," ed. 1720.)—Yours, etc.,

F.S.A.

[Mr. B. Batsford has lent us a copy of Wilkinson's book, and we shall reproduce the plate shortly.—ED. "B.N."]

INCREMENT DUTY.

SIR.—With reference to your letter to your paper regarding "Increment Duty," I have received the enclosed letter, to which I have pinned a copy of my reply.—Yours, etc.,

J. H. KERNER-GREENWOOD.

King's Lynn.

[COPY.]

S.

Linn., May 17, 1912.

J. H. Kerner-Greenwood, Esq., King's Lynn.
DEAR SIR.—In reference to your letter to my trade paper re Increment Duty, I can't quite understand it. In your third paragraph you say under those conditions no Increment Duty is payable. How is it possible for a house to be bought for £400 and sold for £500 without the value of the site being increased?

What is the best means to distinguish the two values?
An answer on this topic will be greatly appreciated.

[COPY OF REPLY.]

King's Lynn, May 14, 1912.

S.

DEAR SIR.—Yours of the 13th inst. to hand, for which I thank you. Builders every day are taking contracts under cost, and I have many times known builders sell houses under cost in order to get ready money. If I bought a house for £400, and a few weeks after sold it for £500, probably because a doctor wanted it for his special use, as it was just the spot for him, it would not necessarily mean that the site value had increased, but that I had used my brain in buying cheaply and selling at a profit. The site value is not altered. It might have been pinned within a week, in fact, but I know how to do that turned over in a day, but that alters the argument. If it were done in a day, it would not be transferred to the middleman. But I think you have got my idea.—Yours, faithfully,

J. H. KERNER-GREENWOOD.

DWELLING-HOUSES FOR THE WORKING CLASSES IN WINNIPEG.

SIR.—During the past few years the members of the city council and their special experts have been trying to draft a modern building by-law, but I think it is not yet fully matured, and in the meantime certain homeless are reaping a golden harvest out of the working classes and gloriously breaking through the so-called by-law now in force in

this city. Will you allow me space to briefly describe the class of building I have inspected and that is now in course of construction in this city? To form a basement they simply dig a hole near the centre of the lot, and the walls consist simply of clay and soil. The stone walling is laid on the surface and reduced to about six inches at the top, where the wall-plates are laid. A very weak runner is placed from back to front on which the floor joists are laid. This runner, being so weak, is supported by means of two props, each 2 in. thick, resting on the top of the dirt, black soil. The floor joists are not built with stone or brick built in time mortar to keep out the frost, but simply a very inferior board nailed on the ends of the joists. The whole framing is weak and far between the standards, but they are boarded over, the inside plastered, the outside painted, and the whole erection is sold to families of the working classes as suitable dwelling-houses, erected under the official inspection of the city council.

These so-called dwelling-houses are not fit for cattle to winter in, and to allow such builders to erect and sell such buildings to families of the working classes shows a most deplorable state of affairs in this city.

We have a City Planning Commission. What are they doing to help the majority of the people? We have an architectural association that represents a section of the architects in this city. What are the members of this association doing to improve this deplorable state of affairs? Nothing! We have a charity association. Are they trying to protect the working classes against this daily reprehensible conduct and relieve the distress of the winter months?

It is almost impossible to keep such houses warm in the winter season. The pipes freeze up and the health department prosecutes the poor families in the winter season because they have not the drains and pipes in good working order. What are the labour leaders in the city council doing? Are they afraid to speak to protect the classes they are paid to protect?

WILLIAM BRUCE, Architect.

Winnipeg, May 6, 1912.

The tender submitted by Messrs. Streeter and Son, of Croydon, has been accepted for decoration, etc., to "The Quarries," Croydon, for Mr. J. H. Rosenthal. The architects are Messrs. George Baines and Son, 5, Clement's Inn, Strand, W.C.

Battersea Borough Council received a communication from the clerk to the London County Council on Wednesday, stating that the Parks and Open Spaces Committee of the County Council had decided to recommend the Council to contribute £6,000 or one-half the sum required to the fund for the purchase of 20 acres of land adjoining the Royal Patriotic Schools at Wandsworth Common. The local acquisition fund, which includes grants from the borough councils of Wandsworth and Battersea, now amounts to about £5,400.

The annual meeting of the National Art Collections Fund was held on Wednesday at Burlington House, Lord Balcarras, M.P., presiding. Lord Balcarras announced that the famous group of statuary by Rodin ("The Burghers of Calais") would shortly be placed upon a site which the Government had given on the Millbank extension between the Tate Gallery and the Houses of Parliament. Correcting a popular misconception, he explained that the group is not a copy of that at Calais, but an original and magnificent specimen of Rodin's work, actually finished by the great sculptor himself. Mr. Balfour, in moving the adoption of the annual report, observed that the £5,000 annually given by the country to the National Gallery for the purchase of new works of art, which might not have been ungenerous or inadequate 20, 30, or 50 years ago, was now absolutely ludicrous in view of the prices habitually, annually, fetched by the great masterpieces in the markets of the world. The cost of the acquisition of art treasures for the nation should not be left entirely to the taxpayer. He suggested that the Government might be approached in certain cases to provide funds for the purchase of masterpieces which private enterprise could not secure. The Earl of Plymouth, who seconded, acknowledged on behalf of the trustees of the National Gallery the invaluable help which they had received from the Fund.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

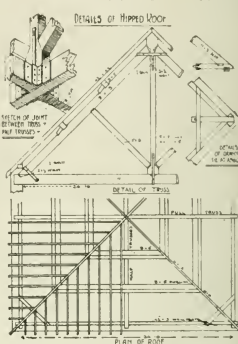
Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

The right to withhold the prize in the event of no reply being received worthy of it is reserved to the Editor, who also claims the right to publish and other replies he may deem useful.

We award the guinea to Mr. James Bromley, Moor Villa, Lower Bank-road, Fulwood, near Preston.

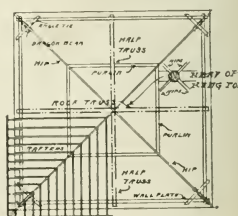
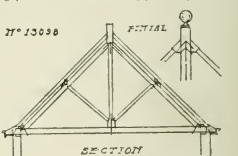
REPLIES.

[13098].—TIMBER ROOF.—The construction of this being roof—which is to be of timber—is solved in the usual manner, by placing one king-post truss



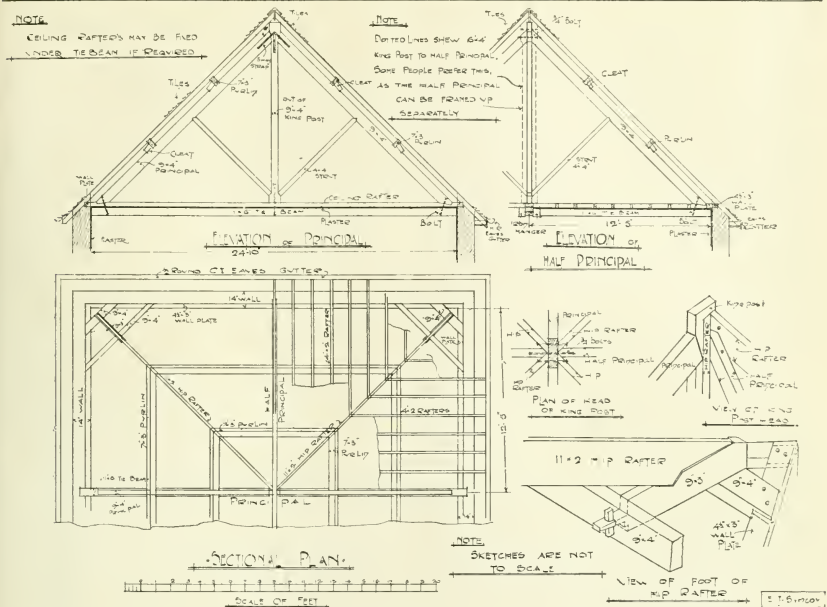
across the full width, and fixing half-trusses at right angles to carry the other sides. The half-trusses are supported by plates bolted to the king-post truss. Shoulder must decide to place two trusses on each side, he must construct two full queen-post trusses and four half-king-post trusses.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13098].—TIMBER ROOF.—As the span is fairly large, a truss of the king-post type should be



T.L.A.N.

used to carry the purlins, with two similar, but half, trusses on the other sides, securely strapped and bolted to the main truss. The head of the king-post had better be finished octagonally above the heads of the principal rafters (see sketch), so as to form a flat face for top of the bips—in fact, a sort



of pendant or hanging post, similar to the more elaborate fan vaulting. The hips should also be framed into a dragon beam, and not on to the wall-plates, which should have the angle necessary to the dragon beam notched and well spiked, so as to counteract the twist of the hips. The actual pitch

[1908].—**TIMBER ROOF**.—I have used the diagonal trussed roof, as illustrated in the enclosed sketch, over a room somewhat similar to the one in the question asked, and consider it makes a strong and economical job. The hips require to be deep enough to take both spars and purlins, which are then

[1908].—**TIMBER ROOF**.—In answer to "Owen's" query re roof-truss for room 347, 100 square, I think the enclosed drawing will be found suitable. The roof should not be less than 45deg. pitch. In other details the drawing will explain itself.—E. J. Symcox, Woodside, Stone-road, Stafford.

[1909].—**FRICITION ON DRAIN-PIPES, AND UNTRAPPING OF DISCONNECTOR**.—A few remarks in answer to this interesting query. In medium-sized domestic work, where there is a regular flow in the pipes, a velocity of 4ft. per second is considered very satisfactory. The following table gives the minimum rate of inclination for various size pipes at required velocities:—

| Diam. of Pipe. | Rate of Inclination of Velocity per Second. | 4ft. |
|----------------|---|----------|
| 4in. | 1 in 182 | 1 in 83 |
| 6in. | 1 in 278 | 1 in 123 |
| 7in. | 1 in 330 | 1 in 143 |
| 9in. | 1 in 416 | 1 in 185 |
| | | 1 in 104 |

This table is worked on a formula which is a combination of Eytelwein's and Beardmore's, and too lengthy for explanation here. We note by this that a 4in. pipe will give us a 4ft.-per-second velocity at an inclination of 1 in 46, so that, as we propose that one inclination shall be 1 in 60, we shall not get quite the required velocity with a 4in. pipe. The greatest velocity is when a pipe is flowing thirteen-sixteenths full, and the greatest discharge when fifteen-sixteenths full. There is not sufficient information given to compute the amount of water passing through the pipes, nor is it stated whether the rain-water is connected to the sewers. I presume not, so it is safe to say that there will not be a constant or great rush of water for any continued time. The gradients are very varied, so that what will suit one will not suit the other. In the flat gradient we want a good velocity, so should use a 6in. pipe; but not in the steeper gradient, where we require to retard the velocity, as there is a tendency for the liquids to flow away and leave the solids to become a nut-ace in the pipe. Then, again, we want a sufficient flow throughout to cleanse the pipes. Taking all this into consideration, I should use 4in. pipe for the whole of Dorsetshire manufacture, 3in. thick, with 1 1/2in. sockets. The friction of soil and water passing through a highly-glazed cast-iron sewer pipe is infinitesimal, and of no detriment to the pipe. With regard to the latter part of this query, the volume of water from the bath passing through the long length of steep-gradient pipes would certainly break force and then pull the water out of the disconnector tray, and so open the drain to the sewer, and possibly force air out of the chamber. Generally, I should suggest the following:—An inspection chamber to be placed at all changes of direction and gradient, with straight covers and grease-pans, a 4in. ventilating pipe to be carried up above the eaves of the house at the head of the drain, with perfect access to the wind, any vertical

of the roof will depend on the material used for the covering. In the case of slates, lead hips would doubtless be best, and for this purpose made tiles; in each case a lead-covered finial will be necessary, something like sketch. If stone tiles are used, sawn stone hip tiles and stone finial would be more appropriate.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

notched and bolted into them as shown. In the centre the tie-beams are halved and strengthened by means of an iron plate on the under side. (See the top of the hip rafters to face four sides, and the workmanship is good, the iron angle-plates shown on the drawing are not needed.—J. C. Tickle, 15, Siskelough-road, Newchurch, near Manchester.

1163.]—**SWIMMING BATH.**—This is one of those questions which it is impossible to answer profitably. It reminds one of the old inquiry, "Given longitude and latitude, and—what was the colour of the certain whicker? What is a "full-size" swimming-bath? What materials? Where? No attempt to reply would be worth the paper they were written on in ignorance of these and other pertinent facts. The proper way to get information on this sort of "local" or "very general" question is

tions and descriptions of baths given from time to time in these pages. I happen, for instance, to have your issue of September 30, 1904, before me, which contains an illustration of a capital and cheap bath at Balsall Heath. Let querrist look that up, and dozens more before and since.—KAPPA.

[1909.] PRESERVATION OF CORRUGATED IRON. No. 1. In my experience, cement wash is of little use on galvanised iron. The cheapest thing I have found is a wash of "Dixon's Graphite Paint," which was very good, but very dear. I have not seen it advertised lately. If I paint corrugated iron, I always doctor it first with a wash of 1 part of chloride of copper, 1 part of nitrate of copper, 1 part sal ammoniac, dissolved in 100 parts of water, and then a wash of 10 of commercial hydrochloric acid. When dry, any good paint for metalwork will then adhere well. — HANCOCK.

[13102]—BOND, "G. M." had better consult his copy of the by-law for the district in which he wishes to erect the house, etc., and note the prescribed penalties. In many big towns, such as Bristol, it is now the custom to require the completion of the roads, paths, etc., before any buildings are erected, and is really a wise precaution, and the alternative offered seems rather curious when penalties are named.—K. H. Read, Lecturer on Building Construction, Gloucester Technical Schools.

[H3102] - BOND - The local authorities have power to demand a bond in connection with works under the Private Streets Act, 1982. If a builder enters a street to carry out works, he is required to lay down roads to an approved plan and specification, he is not legally compelled to carry out this work *before* any houses are erected, as by so doing the streets or roads are improved. The requirement for the completion of the properties before the authorities would take same over. Therefore, if a builder is under bond, and an agreement is above stated, he is not obliged to lay down the roads which he chooses - providing, of course, that the agreement does not state that the streets or roads have first to be completed. Winterburn 147 - New castle avenue, Workop, Notts.

[1310].—BOND.—“G. M.” is laying on a new estate, and is asked by the local authorities to either complete the street works before the houses are erected, or to enter into a bond of £400, that he will complete the street ere the houses are being occupied. Neither of these alternatives can be put in force, and are altogether unnecessary, as under Public Health Act, 1875, section 150, the urban sanitary authorities have a right to demand such notices have been served on the owners of the premises adjoining. Therefore, the houses must be erected before notices can be served to complete, and the street works must be done ere the houses are necessarily completed, prior to erection of houses. As the authorities can dedicate any street or part thereof, it would be in order for them to do it part by part, as the street is laid out. Surveyors (One), 225, Nottingham-street, Sheffield.

A receiving order has been made in the case of Lionel Littlewood, Ashted, near Epsom, builder and architect.

The death is announced of Mr. Albert E. Edwards, surveyor's assistant and road supervisor under the Bath Corporation.

Chester Corporation's scheme to harness the River Dee for producing electric power was discussed at a Local Government Board inquiry on Friday, when the local waterworks company offered much opposition.

The Hendon Urban District Council have received an intimation from the Local Government Board of its willingness to sanction a loan of £17,053 for the erection of a school for 1,000 children on the Hampstead Garden Suburb Estate.

Lady Wantage opened the other day the new buildings of the Royal Berks Hospital, which have been erected at a cost of £22,000. She also opened a new children's ward, costing £6,000, at the same buildings—Berkshire's memorial to King Edward.

The housing sub-committee of Exeter City Council recommend the purchase of the Exeter Nursery, St. Thomas, nine acres in extent, for £2,039, as a site upon which to erect houses for persons dispossessed by the Paul-street and Blackbox-road widening scheme.

An application by the South Shields Corporation for sanction to borrow £6,655 for paving work was the subject of an inquiry at South Shields on Monday, by Mr. R. H. Dickneil M.Inst.C.E., a Local Government Board Inspector. The town clerk stated that the money was required for repaving eight old streets. It was proposed that they should be paved with granite setts on concrete foundations.

A great deal of activity exists in the building trade both in the city of Bahia and suburbs. In the lower city or business quarter numbers of old houses are being pulled down with a view to the construction of an avenue of modern buildings. There is a growing demand for iron beams and girders, as well as for cement and building materials of all kinds. Lifts will be in request if the houses are on the lines indicated.

Engineering Notes.

IRRIGATION SCHEMES IN MESOPO.

AMIA. The Turkish Ministry of Public Works recently invited tenderers for the construction of irrigation works for the Euphrates and Tigris, the present Government. The works were divided into two groups, the first of which comprises the new Hindiyeh barrage and protective works against floods of the Euphrates and Tigris, while the second includes the construction of the Feludja barrage, with two systems of canals connected one on the right bank of the Tigris and the other on the left bank of the Euphrates. Two British firms—namely, Messrs. Pearson and Son, Limited, and Sir John Jackson, Limited, tendered. The former offered to construct the works of the first group in four years for £2,380,000, and the works of the second group for £1,500,000 in five years. Sir John Jackson's tender was £2,370,000 for the first group and £1,515,000 and five and a half years respectively. Messrs. Pearson having made reservations in their final tender which were calculated to raise the price, and were not in conformity with the conditions imposed by the Government, the commissions responsible for the proposition have not recommended the tender, but do not recommend the definite acceptance of Sir John Jackson's offer, considering the price too high.

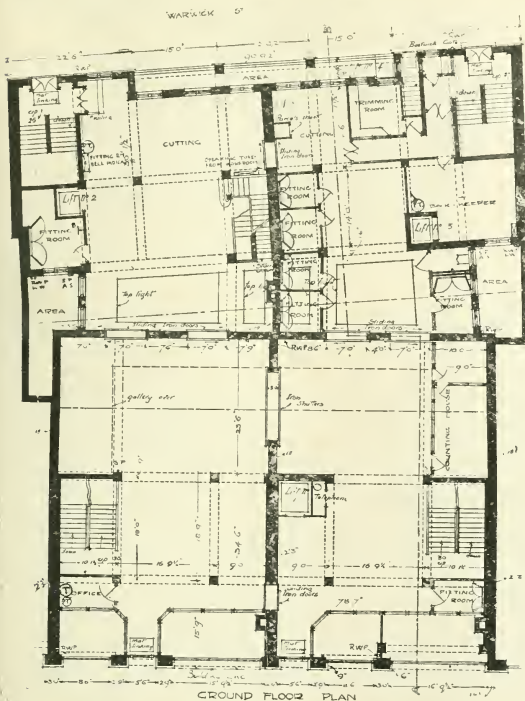
Our Illustrations

LLOYDS BANK: NEW PREMISES
KING-STREET AND CROSS-STREET,
MANCHESTER.

One of our double page plates to-day, shows a view of this new building, which is now being commenced on the site of the old Reference Library at Manchester. The bank entrance, as seen by the accompanying sheet of plans, is the upper one of the two in King-street, and the banking chamber will occupy more than half the total ground floor area. The mezzanine floor, which is the general office entrance. Above the ground floor there are a mezzanine and four other floors, except over the bank portion, where there is no mezzanine floor, the extra height being thrown into the bank. The whole of the three frontages will be faced with Portland stone, Aberdeen granite forming the plinth. Steel and reinforced concrete construction, the banking chamber will be lined with marble. The general contractors are Messrs. Blake, Ltd., of London, who have recently carried out the British Museum extensions. The masonry is let to a local firm, at whose yard all the stone will be worked. This applies to other sub-contracts such as plumbing, brickwork, steel work, etc. The architects are, Messrs. Charles and John Peto, Esqs., of Manchester and London. We shall give some details of this building next week.

NEW PREMISES FOR MESSRS. H. J. NICOLL AND CO., LTD., 114, REGENT STREET, S.W.

The accompanying plan shows the extent of these buildings, which have frontages in Warwick-street as well as in Regent-street, where Messrs. H. J. Nicoll and Co., Ltd. premises are located, with a frontage of 75 feet, as illustrated by our plate, the rear floors abutting against a 60 ft. The ground floors abut on a grooved level, the total height being about 95 ft. The construction is of the steel frame type, with seven stanchions spaced along the front, accommodating the architectural lay-out of the elevation. The maximum span is 25 ft. internally, so that compound girders are obviated. Grillage foundations are provided for all stanchions, the largest one being 7 ft. square, and the others 6 ft. 6 in. square, and 6 ft. 6 in. square. The floors are calculated to carry a live load of 112 lb. or 84 lb. dead weight. The largest beams are 26 in. by 7 1/2 in., the filling-in joists being 7 in. by 4 in., spaced 3 ft. apart in the clear. Excellent accommodation is furnished



RECENT STREET

PREMISES, MESSRS. H. AND J. NICOLL, REGENT STREET.

by varied showrooms and fitting rooms. The ground-floor has a gallery at the first-floor level. Owing to the large cubical extent of the premises, it was necessary to introduce party-walls with iron doors, to divide same into four buildings, each of which has a staircase extending the full height of the premises. The front to Regent-street is carried out in Portland stone, and the roofs are slated. The treatment appropriately indicates the business character of the building, which is well adapted to the exigencies of commercial requirements, making at the same time a worthy and broadly handled architectural addition to Regent-street. Messrs. Holland and Hannen were the builders, and the architect is Mr. Henry Tanner, F.R.I.B.A., of Carlton-chambers, S.W.

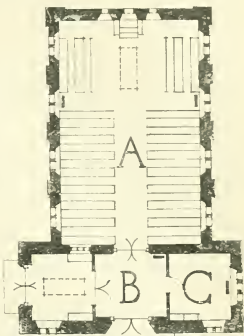
CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.

This design was placed first in a recent competition by the assessor, Mr. Alfred W. S. Cross, M.A. As the sum named in the conditions for the whole of the works, including boundary walls, was £4,000, and it was further stipulated in the conditions that they should be executed in granite, an endeavour has been made to obtain a good effect by simple means. The site being in an exposed position on the coast, special shelters have been provided at the entrance-gates. The materials proposed are granite-faced walls, roofs covered with Westmoreland peggies, and all exterior joinery, together

with the furnishing of chapel, in oak. The accompanying plan illustrates in detail the two buildings. Messrs. Oliver, Leeson, and Sons, of Newcastle, are the architects. The drawing here reproduced is now on view in the Royal Academy Exhibition.

ST. JOSEPH'S CHURCH, ALDERSHOT.

This elevation of the exterior and perspective of the interior are hung at the Royal Academy this year. They are of a design for the above church, which was placed second in competition. The site is a very small one, between Queen's-road and Princess-street,



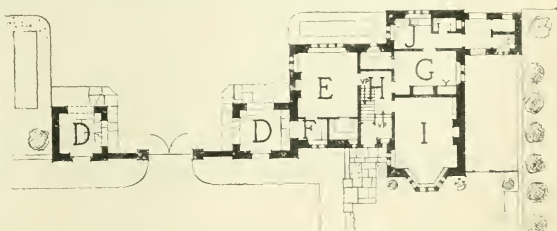
CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.

but on high ground falling towards the S.E. The design is arranged to get as much seating accommodation as possible, the sacristy being provided in the crypt under the altar. The chapels are planned so that the seats in them can be used for services in the main church without rearrangement. It was intended to face the building externally and internally with 2in. brown bricks, to be made locally. The stonework was to have been Portland, and the domes concrete. The apse would have stood out prominently at the junction of the two streets, and would have shown from any part of the town. Messrs. H. R. and B. A. Poulter are the architects, from Camberley, Surrey.

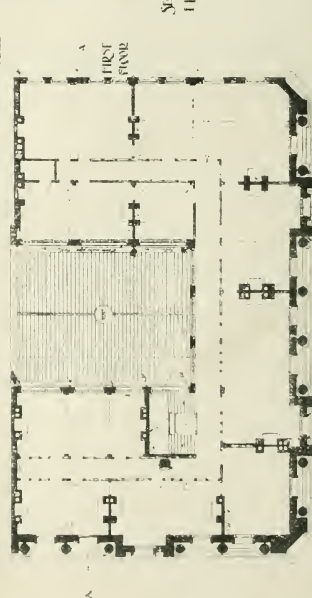
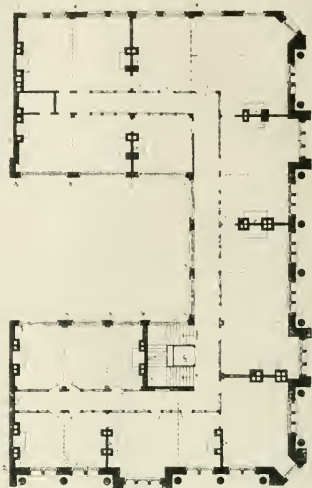
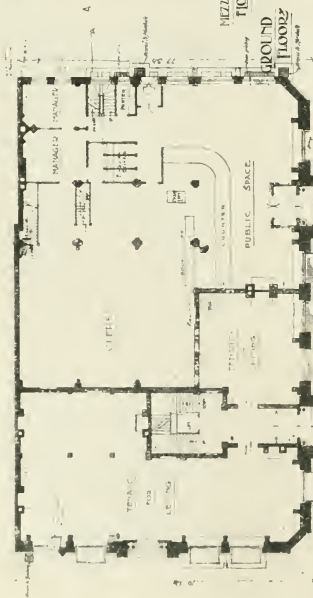
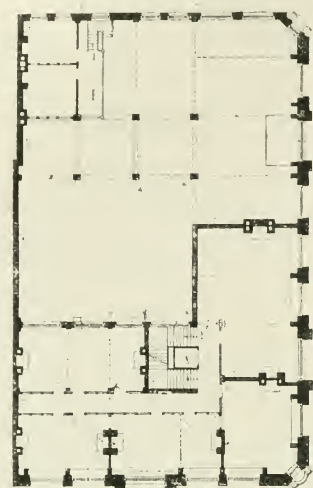
Mr. Asher has been appointed to the dual position of highways and sanitary surveyor to the Achem Rural District Council, at a salary of £260, rising to £300 per annum, in succession to Mr. T. Fortune, who has resigned after 21 years' service.

Mr. Henry Drew, of Peamore, Exeter, died late on Thursday night in his 86th year. Mr. Drew was a member of an old Devon family, who were stewards of the Devon and Peamore estates. He was surveyor and valuer for the London and South Western Railway Company.

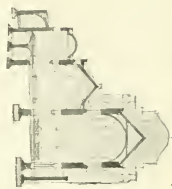
Sir A. B. Kempe was granted at the London County Court a petition by the rector and churchwardens of St. Bartholomew the Great, Smithfield, for a faculty to sanction an exchange of land and light in the interest of that ancient City church. Two pieces of land adjoining the south side of the church now occupied by Pope's Cottages, will be acquired in exchange for rights of way over a passage known as Cockerell's Buildings, and rights of light over the south churchyard. The object of the arrangement is to remove from the church a source of danger from fire caused by the contiguity of the present cottages, and to prevent large warehouses being built against the church in the future. When the cottages are pulled down three Norman buttresses will be exposed to view.



CEMETERY BUILDINGS, WHITLEY BAY, NORTHUMBERLAND.

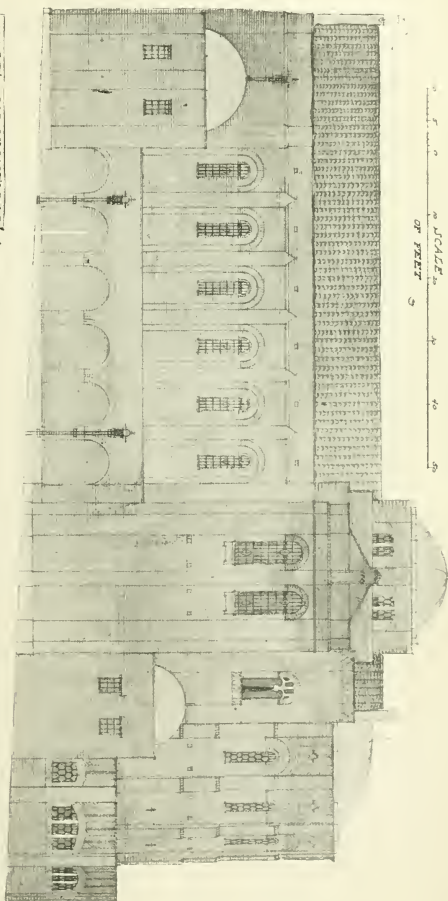


LLOYDS BANK: NEW PREMISES, KING STREET AND CROSS STREET, MANCHESTER.—Messrs. CHARLES HEATHCOTE AND SONS, Architects.



SCALE
OF FEET

EAST ELEVATION



SOUTH ELEVATION



PLANS & SECTION

VIEW 3 ROAD



ST. JOSEPH'S CHURCH, ALDERSHOT.—Design by Messrs H. R. and B. A. Portman, Architects.

Building Intelligence.

LIVERPOOL CATHEDRAL.—Sir William Forwood, on behalf of the Liverpool Cathedral Committee, announces that it is their intention to complete the first part of the Cathedral within the next four years. During the past ten years the committee have collected £37,257, and have had special offerings for fittings, furnishing, etc., valued at £75,355. The completion of the last chapel, choir, vestry, and chapter-house will exhaust the funds. The cost of the new choir transcripts will be £74,000, and to enable them to be consecrated with the choir that part of the sum of money must be obtained before the close of this year.

MIDDLESBROUGH.—The new free library at Middlesbrough has been formally opened. It has been built from plans by Messrs. Russell and Cooper, of Gray's Inn-square, W.C., selected in competition by the assessor, Mr. J. S. Gibson. The building is by Mr. Henry McCaughey, of Middlesbrough, and Mr. J. G. Duckworth was the clerk of works. The building is arranged with access for the public to all departments from the entrance of staircase hall, except the news room, which has a separate entrance from Grange-road. The principal entrance gives access to the landing, reference, law, and patents libraries, and to the ladies' reading room; the secondary entrance gives access to the juvenile library. The lending library is placed to the left of the principal entrance, and accommodates 40,000 books in steel stacks. The boys' and girls' reading-rooms are separated from each other by screens. The ladies' reading-room is placed on the right of the principal entrance-hall. The reference, law, and patents libraries are placed together on the first floor. The whole of the furniture has been designed by Mr. Edwin Cooper, F.R.I.B.A.

PORTSHEAD.—The new chapel of the National Nautical School was dedicated last week. It has been erected from the designs of Mr. Edward Gabriel, who was also architect for the commanding range of school buildings familiar to everyone who goes up and down the Bristol Channel. The chapel is in the style of the transitional period of the 15th century, and is built of stone from the Harttham Park and Four Hill Quarries. It is cruciform in plan; the nave with narthex forms the main western arm, and the sanctuary the eastern arm, while there are transepts north and south. The chancel is at the meeting-place of these architectural features. The clergy vestry, with its east window (underneath) adjoins the north transept.

STRAND, W.C.—The palatial building erected in 1902-5 at the junction of the Strand and the western horn of Aldwych for the Gaiety Restaurant Co., in the Florentine Renaissance style, from the designs of Messrs. Runtz and Ford, in collaboration with Mr. Norman Shaw, R.A., not having been a commercial success in its original purpose, was let in March last by the landlords, the London County Council, to Marconi's Wireless Telegraph Company, who are now in occupation, the necessary internal alterations having been completed. The main entrance-hall of the Strand opens into a waiting-room panelled in Honduras mahogany, and on the same floor an apartment, measuring 60ft. by 80ft., and fitted with desks, is decorated in the transfer department. A balcony round this room is occupied by dictaphone machines and their operators, and from it an electric lift for the conveyance of dictaphone records runs to each of the eight other floors in the building. The ground floor also contains the telegraph office, which is open day and night for the reception of telegrams, and from the operators' room connected to it a private wire leads directly to Clifden, so that Transatlantic messages can immediately be dealt with. On the same floor is the central exchange for the pneumatic tubes installed throughout the building. The grand staircase 10ft. wide, leads to the first floor, where is the managing director's room—an apart-

ment furnished and decorated in the Georgian style—with manager's room and accommodation for private secretaries adjoining. The second floor contains the secretary's and accountant's departments and the board-room, the latter occupying what was previously the lower part of the Masonic Temple. The accountant's department, which is 60ft. by 80ft., was formerly the ball-room. The third floor is given up to the engineering and technical staff, while on the fourth are Mr. Marconi's private room, and the patent, field station, stationery, and publicity departments. The traffic manager and his staff occupy the fifth floor, the sixth is partly reserved for the housekeeper, and the seventh provides a workshop, a room for making prints of the drawing office tracings, a photographic dark-room, a drawing office, and showrooms. An aerial will eventually be placed on the roof for demonstration purposes. Three lifts, made by Messrs. Waygood and Co., serve the various floors, and for intercommunication between the different floors there is a system of telephones with nearly 100 extensions. The architects were Messrs. Dunn and Watson, and the surveyors Messrs. T. M. Deacon, Son, and Addiscott. Messrs. Trollope and Collie executed the structural alterations, and also the joinery and mahogany screens. We illustrated the building by perspective and plans in our issue of Sept. 26, 1902.

SHAWLANDS.—The memorial stone of the new South Shawlands United Free Church, which is seated for about 1,000 persons, has been planned on broad lines, length of nave being avoided. The whole of the pews in area are circled, radiating from the pulpit so as to give every person a direct line of vision towards the pulpit. A special feature of the church is that the galleries are supported by cantilevers, so that there are no columns to obstruct the vision. The pulpit end has been designed for an organ, the manual to be in front of the choir platform, where there is accommodation for a choir of thirty-seven persons. A separate platform is provided for Communion services, with accommodation for minister and elders. A large hall is provided under the church. The walls are of red stone with tooled dressings and rock-faced rubble. The roofs will be slated with green slates and red ridge tiles. The church will have an open circular roof of combined steel and wood construction, the ceiling being lined with wood and divided into panels with moulded ribs. The style of architecture is Late 15th-Century Gothic. The following are the works: Mason work, McLeod and Campbell; joiner work, Anderson and Henderson, Ltd.; steel work, John Burdon and Sons; plumber work, John Paterson and Co.; plaster work, Wemyss and Livingstone; slater work, W. and D. Mailer; tile and terrazzo work, Hadow Forbes and Co.; glazier work, Wm. Melkie and Son. The architects are George B. Walker, Ltd. The architects are Messrs. Miller and Black, F.R.I.B.A., I.A., of 58, Renfield street, Glasgow.

The Local Government Board have sanctioned the Doncaster Corporation borrowing £25,400 for the purpose of gas works extensions, including a new holder and condenser, mains, and meters.

The death took place on Saturday of Mr. Samuel Hearn, who in 1901 retired as the first superintendent of the Birmingham Public Parks, having at that time completed his seventieth year and thirty years' service under the corporation.

At Clay Cross on Monday night Mr. Edgar Dineley, a Lichfield tradesman, Board member, held an inquiry into an application by the Clay Cross Urban District Council for sanction to borrow £1,150 for the purchase of land at Woodthorpe for allotments and for a refuse tip.

The Staffordshire County Council adopted, after some discussion at their recent meeting, a resolution to appoint the Main Roads and Bridges Committee to appoint Mr. James Menour, jun. (son of the county surveyor), as assistant county bridgeman, at a salary of £200 per annum, with a travelling allowance at the rate of 460 per annum.

PROFESSIONAL AND TRADE SOCIETIES.

APATHY AMONG BIRMINGHAM PLUMBERS: LECTURES AND PRIZES ABANDONED.—The annual meeting of the Birmingham and District Council of the National Registration of Plumbers was held at the Council House on Thursday evening in last week. Mr. Anthony Lees presiding. The report stated that in pursuance of the scheme for encouraging instruction of plumbing students prizes were awarded in the technical classes in the district. The sum of £18 10s. had been distributed in 1911 among the education committees of Birmingham, Burton-on-Trent, and Wolverhampton, Worcester, and Gloucester. The council regretted that the state of their funds would not permit their continuing to offer these prizes. The lectures given under the auspices of the council, while successful as regarded attendance and interest, yielded no results in the accession of members, and as they cost £20, the state of the funds would not permit the experiment to be repeated. The statement of accounts showed that the expenditure had necessitated the capital account of £54 being closed, and the amount transferred to the general account. There was a balance in hand of £36 12s. The report and accounts were adopted, and the officers were re-elected.

BRISTOL SOCIETY OF ANTIQUAIES.—The members of this society made their first motor excursion of the season on Saturday, the first half being at Westbury-on-Trym, where an inspection was made of the church. The Rev. Dr. H. J. Wilkins, the vicar, gave an outline of the history of the church, as well as indicating the most interesting features of the building. He remarked that when Bristol was for the most part an undrained swamp, Westbury was a place of light and learning. The earliest church there was a monastic one, probably built about 715 or 718. In 961 came the Benedictine monks, and it was Westbury's proud boast that there was the first house of the Benedictines in England. The church was enlarged and made collegiate by Bishop Gifford in 1228, and from that time the church had a dean and chapter. The college was rebuilt in 1447 by Bishop Carpenter, and removed a little distance away from the original one, of which nothing remained. Of the college built by Bishop Carpenter a tower was the chief portion extant. Westbury Church was enlarged in 1473, and made the cathedral church, the Bishop's Palace being then at Westbury Abbey. Cathedral being then a name, the church was as Carpenter left it. Carpenter, who styled himself Bishop of Worcester and Westbury, was buried in the little crypt chapel, and on the opposite side of the chapel there was a tomb prepared for his friend, Canynge, who, however, was not buried there, but at Redcliffe. The bishop's tomb since that time sadly decayed. In 1559 Henry VIII. stripped Westbury. Prince Rupert fired the college buildings in 1643 on his way to Bristol, in case they might become a stronghold for the Parliamentary forces. In 1851 the church was partially restored. Afterwards the party visited the college tower, where Mr. A. Little read some interesting notes on the history of the building, of which so little now remains. The members then proceeded to Henbury, where the vicar, the Rev. C. P. Way, also read a short paper on the church, which was restored by the elder Rickman ninety years ago with sad results. It was again restored in 1878 by the late G. E. Street, R.A.

BRITISH ARCHEOLOGICAL ASSOCIATION AT GLOUCESTER.—The Council of the British Archaeological Association has decided to hold the annual congress in Gloucester from June 24 to 29. On the first afternoon a visit will be paid to Gloucester Cathedral, where an address will be delivered by the dean, and in the evening there will be a reception by the Mayor of Gloucester at the Guildhall, and the delivery of the presidential address by Mr. Charles E. Keyserling. The following day will be spent in the inspection of places of historic interest in Gloucester city, and in visits to such places

FAMILY LITIGATION OVER PLUMBER'S ESTATE.—(Peacock v. Peacock).—A case in which the litigants were brothers was heard in the Lancaster Chancery Court at Manchester on Monday. Mr. Abbott appeared in support of a motion to commit to prison the defendant, Mr. Walter P. Peacock, or in the alternative, to give the plaintiff the sum of £500,000, and also to commit the defendant for contempt in wrongfully failing to hand over to Mr. W. F. Morris, chartered accountant, Manchester, the receiver of the outstanding personal estate of the late Mr. J. Peacock, who at the time of his

speculative building trade. Great depression in the brickmaking trade ensued. These circumstances, debtor maintained, had arisen in consequence of the land clauses of the Finance Act. A trustee was appointed.

PARLIAMENTARY NOTES.

LONDON TRAMWAYS EXTENSIONS.—The Trauways and Improvements Bill of the London County Council is under consideration by a committee of the House of Commons, of which Sir Luke White is the chairman. In opening the case for the Council, Mr. Pollock, K.C., stated that four of the tramway schemes contemplated when the Bill was deposited, had been struck out, owing to the opposition of the authorities. The total expenditure involved by the schemes which would come before the committee was £238,565, covering the construction or reconstruction and equipment of tramways and street improvements and tramways. The committee considered, and, on Friday, decided to sanction, Tramway No. 6, which is an extension of the service which runs from Tooley-street to Woolwich and Greenwich. The proposal, which has been submitted to Parliament, is to sever the line, at the junction of Tooley-street to a point near Duke-street, some 300 yards nearer to London Bridge than the present terminus in Tooley-street, at a cost of £6,000. The proposal was stoutly opposed by the owners and occupiers of warehouses in Tooley-street.

ANCIENT MONUMENTS BILL.—Mr. Gulland, on behalf of the Master of Elibank, moved in the House of Commons on Wednesday night that a Select Committee of six Members (Mr. Gulland, Mr. Mr. Noel Buxton, Mr. Grant, Mr. Chas. Price, Mr. Mark Sykes, and Mr. Llewellyn Williams) be appointed to join with a Committee of the House of Lords to consider the three Ancient Monuments Bills. After some debate the motion was agreed to.

STATUES, MEMORIALS, &c.

CHISWICK.—There has recently been erected in Chiswick Churchyard, the cost being defrayed out of the White Estate, a tomb in memory of the late Mr. James McNeill Whistler and his wife, whose graves are there side by side. The tomb is of bronze, resting upon a die and step of green granite, and the design of the design is the work of either the artist or the architect. The upper part is ornamented with a frieze and bay-leaves. At each of the four corners, standing upon the die, there is a figure of a Classic mourner bearing an offering of fruit or flowers. The tomb is either seated or the centre panel there is an ornamentation of bay-leaves between two Ionic pilasters. The sculptor was Mr. Edward Godwin.

EDINBURGH.—A memorial tablet erected in St. Giles' Cathedral, to the Right Reverend Theodore Marshall, D.D., was unveiled by Lord Tweedmouth. The memorial, which takes the form of a mural tablet, is placed under the window erected to Lord Curriehill, brother of Dr. Marshall, near the Albany Aisle. It is formed of white marble in a frame of Algerian onyx. It is surmounted by the arms of the Marshall family, and in the four corners are enamelled representations of the Four Evangelists. The memorial is the work of Mr. W. S. Black.

MOSCOW.—The Emperor and Empress of Russia will visit Moscow in the Coronation week, to unveil the monument to the late Emperor Alexander II., and to open a museum of fine arts named after him. The monument represents the last of the Autocrats of Russia seated on his throne, crowned, adorned with sceptre and sceptre. The figure is of heroic size, raised high upon a triple flight of steps leading from the banks of the Moscow River to the elevation on which stands the Cathedral of the Saviour, built by the Emperor Alexander in 1812. The monument occupies the corner of the square nearest the Kremlin, and the figure looks out over the Moscow River; it is the first monument to be erected on the final site, heavily by the square on which the Cathedral of the Saviour stands. From the windows of the Grand Palace of the Kremlin the figure of the last of the Autocrats is so placed as to be plainly visible in profile.

The Tribunal of Appeal under the London Building Acts will hold a special sitting at the Supreme Court Institution to-day (Friday) to hear an application by the London County Council that the Tribunal should state a case concerning the general lines of buildings in Wimbledon Park-road and Augustus-road, which were the subject of a recent appeal.

Our Office Table.

The late Madame Edouard André, née Jacquemart, the widow of a well-known financier, and before her marriage a successful portrait-painter, has bequeathed to the Institut de France the greater part of her fortune and the collections contained in her house in the Boulevard Haussmann. The collections are to remain in the house which now contains them, and which will be turned into a museum. Among their many treasures are a painting of Metéys by himself, three Mantegnas, a fine Luca Signorelli, a collection of Italian sculpture is very remarkable, including fine specimens of Pietro Lombardo, Donatello, Mino da Fiesole, and the famous horse of gilded bronze attributed to Leonardo da Vinci. The surplus revenue of the fortune, which is itself estimated at about £500,000, will be devoted to the assistance of young artists, painters, and sculptors in which way as shall seem best to the Institut.

Earl Curzon of Kedleston, who purchased in November last Tattershall Castle, Lincolnshire, has now, aided by generous friends, recovered the much-talked-of 15th-century carved stone fireplaces which were taken out of the castle last summer and sold to the London dealer. The work of restoring the castle and its surroundings, so far as can legitimately be done, to their former condition has already been commenced. As soon as this is sufficiently advanced, the fireplaces will be restored to their original position in the castle walls. The work of restoration will be completed next year, when it is proposed to throw the castle open to the public.

The archaeological excavations carried out by Daninos Pasha have resulted in the discovery of the necropolis of Heliopolis, the intellectual centre of Egypt for over four thousand years. The necropolis is situated in the desert, three miles to the east of the Matarieh Obelisk. There are many burial-pits cut out of the rock in the last spurs of the 22nd, 23rd, and 24th dynasties which have been excavated by Daninos Pasha were from 55 ft. to 220 ft. deep. They were filled to the top with sand, and contained embalmed human bodies and the skeletons of sacred animals and birds. Undamaged this eggs were found. Unfortunately, nearly all these tombs were ransacked years ago by Romans and Arabs hunting for treasure. Some pillars discovered in the neighbourhood of the necropolis represent a man adoring the sacred bull Apis. Mariette Pasha during his search, lasting fourteen months, found, out of sixty-four tombs sacred to the bull Apis, only four which had escaped the ravages of treasure-hunters.

At their meeting on Tuesday the London County Council received a report from the Asylum Committee, recommending that the Council proceed with the request of the Heron Estate of the Council's eleventh asylum. The estimated capital expenditure on the new asylum, which will have accommodation for 2,066 patients, is £467,970, and another £50,000 is included in the estimate for the equipment of the building, which it is expected will be ready for occupation in four or five years' time. At the request of the Finance Committee the Council's Asylum Committee considered the possibility of erecting the new asylum in sections; but they do not consider this course advisable, since the accommodation will be fully utilised as soon as the building is completed. The report was, after much discussion, adopted. The Improvements Committee reported that the Council should co-operate in a proposed widening to 50 ft. of Leadenhall-street at Nos. 37 to 69 (inclusive), by agreeing to contribute one half of the net cost of the improvement. The total cost is estimated

at £252,800. The premises in question are situated immediately to the west of the junction of Leadenhall-street with Aldgate and Fenchurch-street. The portion of the street proposed to be dealt with is quite inadequate to accommodate the heavy traffic. The committee agree that the necessity for the improvement is now so imperative that its execution should not be delayed any longer, and they recommend the Council to contribute one half of the net cost of the improvement, provided that such half does not exceed £126,400.

Holding it desirable that the dock extension plans of the Port of London Authority should be dealt with as a whole, the Highways Committee recommended the Council to disapprove the plans of bridges proposed to be constructed in connection with the extension of the Royal Albert Dock. Two years ago the Council entered into an arrangement with the London, Chatham, and Dover Railway Company for the design and reconstruction of the bridge carrying the company's railway over Brockley-road at an expenditure not exceeding £10,000. It was now reported that the work has been satisfactorily completed at a net cost to the Council of £6,453 6s. 10d. It was further reported that Messrs. J. Mowlem and Co., Limited, have completed the construction of sections 3, 4, and 5 (extension of the northern low-level sewer No. 2—i.e., that portion from Eastfield-street, Stepney, to Belgrave-square, at a total cost of £533,000. Section 5 of the same sewer is being constructed by Messrs. Airds, Ltd. (late the Westminster Construction Co., Ltd.)

The Education Committee reported to the Council that they have had under consideration the effect of section 3 of the Education (Administrative Provisions) Act, 1911, on the London Building and Drainage Acts, and by-law made thereunder, so far as school buildings in the County of London are concerned, and have taken counsel's opinion on the matter. This question arises in connection with the enlargement of the Camberwell School of Arts and Crafts, in respect of which no notices have yet been given. The committee are advised that, while the district surveyor is entitled to notice in regard to the alterations to the existing buildings, and the local authority is entitled to notice and deposit of plans as regards the alterations to the existing drainage system, as regards the new buildings and the drainage in connection therewith neither the district surveyor nor the local authority is entitled to notice or deposit of plans, and they have instructed the contractors to proceed. The town clerk of Camberwell has issued a summons against Messrs. E. Lawrance and Sons, Limited, the contractors, in respect of their failure to deposit plans, etc., in regard to the drainage works. In view of the importance of the question the committee have instructed the solicitor to defend the summons on behalf of the contractors.

The parks committee of the Manchester Corporation had a discussion on Friday last on the question of the destination of the facade of the old town-hall in King-street, and a final and satisfactory settlement of the battle of the sites was arrived at. Some months ago they decided to accept the facade and re-erect it in Platt Fields. Since then strong opposition to the proposed re-erection in Platt Fields has been raised by people living in the neighbourhood of the park. In the circumstances, the committee made several visits to Platt Fields to see if a more suitable site than the one first suggested could be found. They have now settled the question by deciding to place the facade in Heaton Park, and a sub-committee has been appointed to select a convenient position.

In Edge-lane, Liverpool, the corporation have for some months past been bringing down a new tramway line, extending to the Tournament Hall. The intention being to continue the line to Broadgreen when the intervening property falls into the hands of the local authority. From the Botanic Gardens to a point a few yards westward of the Tournament Hall is to be seen the unusual combination of two spacious roads running

parallel but at different levels. The new road with a pitch macadam surface is separated from the old road by a concrete retaining wall, surmounted by a stout wooden rail. At one point the new road stands three or four feet above the old road, whilst at another point it runs from three or four feet below. There are footpaths on either side. Mr. J. A. Brodie, city engineer (at present engaged in laying out the city of Zell for the Government), evoked the new road, the object being to negotiate an ascendent gradient, which has now been reduced from 1 in 28 to 1 in 47. The new road will be thrown open for traffic in the course of a few weeks.

The town planning committee of the Manchester Corporation are now engaged on a scheme affecting the northern portion of the city. It is proposed to lay out a large tract of land contiguous to Middleton and Blackley—work which is to be carried out in conjunction with the various landowners. The committee recently had a conference with representatives of the Middleton Council, who expressed a willingness to co-operate with the city authorities in the matter. Purchasers of land for building purposes are being requested to conform to the town-planning scheme. The rentals of the houses are to range from about 5s. weekly to £40 annually. The other scheme on the north side of the city, that on the Blackley estate, is being matured, and the land is being put on the market.

Mr. George Macfarlane, who has been for over forty years a prominent figure in the building industry of the country, and of the Manchester district in particular, received a presentation of plate at the close of a meeting of the Manchester, Salford, and District Building Trades' Association on Thursday afternoon in last week. Subscribers had come from members of the association and friends engaged in the trade throughout the country as the token of appreciation of the services rendered to the industry by Mr. Macfarlane. Mr. William Tinker, the retiring president of the association, occupied the chair, and the presentation was made by Mr. Henry Matthews, who said that Mr. Macfarlane had received all the honours, both local and national, which the building trade could confer upon him. He has been president of the Manchester and Salford Association, the Lancashire, Cheshire, and North Wales Federation, the Northern Centre, and the National Federation. Mr. James Higson, Mr. James Storrs (Stalybridge), Mr. S. Smethurst (Oldham), Mr. William Thorpe, and Mr. L. Normanton each paid a tribute to the work of Mr. Macfarlane, who then responded. Mr. Macfarlane was formerly chairman of the South Manchester Board of Guardians.

A very successful one-day tournament was held by the Chartered Surveyors' Golfing Society on the Fulwell Club's course on Tuesday, May 14. A bogey competition was held in the morning, in connection with which a handsome prize was presented by the captain, Mr. W. E. Stracallin, of Milne. The leading results were:—J. S. Gilbert, 2 up winner; J. P. Willmott, all square; Samuel Martin, 1 down; A. de Broie Shroobree, 2 down; E. de Bock Porter, 2 down; S. F. Monier Williams, 2 down; J. Chandler, 3 down; W. Streathfield Milne, 4 down; H. R. Barker, 4 down; A. K. Gibson, 4 down; F. E. Sneath, 5 down; H. Marks, 5 down; G. M. Nicholson, 6 down. In the afternoon stroke competition took place, which resulted in a tie, a prize being presented by the Society:—S. F. Monier Williams, 81 less 3, 78 net; Walter Foster, 86 less 8, 78; A. T. Latham, 89 less 11, 78; E. Howard, 98 less 18, 80; F. E. Sneath, 92 less 12, 80; E. de Bock Porter, 98 less 6, 92; P. Harvey Ross, 100 less 12, 88; C. L. Love, 92 less 12, 80; J. P. Willmott, 98 less 14, 84; S. Martin, 10 less 16, 84; J. Chandler, 104 less 18, 86; J. M. Maule Brooks, 102 less 15, 87; E. B. Gasco, 106 less 18, 88; H. C. Heath, 110 less 12, 89; Sydney A. Smith, 89 less 8, 91; J. Sargent, 110 less 18, 92. The tie was played off, with the result that Mr. Walter Foster was the winner.

With reference to our previous notice

relative to the International Building Exhibition to be held at Leipzig in 1913, it is notified that the exhibition will be open from May till October. It is intended to embrace all home and foreign products used in building or for interior decoration, furniture and fittings, and building materials of all kinds. There will be eight sections, divided into various groups, including, inter alia, engineering building works; decorating and furnishing of interiors; laying out of gardens and parks; manufacture, preparation, and use of various building materials; heating and lighting apparatus; machinery used in the building trades; and sanitation and fire prevention. Applications for space must be made to the Directors, International Building Exhibition, Leipzig, before October 1, 1912.

"The Social Guide." Adam and Charles Black, 4, Sobho-square, W. 28, Gd., has evolved for the architect and the third annual issue is fully up to date, with several useful additions. The information comes under that all-comprehensive heading of "Knowing One's Way About." It deals in alphabetical order with every social function of note. Not only does it give detailed information as to the date of each function, how to obtain the tickets, how to dress, etc., but it furnishes those hundred and one little practical details which everyone must at some time or other require to know, and which the ordinary guide-book of reference has hitherto disregarded.

There has been a very persistent rumour prevalent for some time, says the *Hereford Journal*, that Messrs. W. H. Godwin and Son, who have carried on business at the Euxine and Art Tile Works, Lugwardine, were retiring, and that the works would be closed. This rumour has been verified quite recently, and it is understood that the whole of the freehold manufacturing property, with the manager's and two other residences, as well as a quantity of land, will be offered for sale in the month of June, the premises covering an area of 11½ acres. The works were established in 1848, and are generally known as the "Lugwardine Tile Works." During the past sixty-four years Messrs. Godwin have carried out some very important contracts, and their work has gained a very enviable reputation for the Lugwardine works. The reproduction of Early English ecclesiastical prices by Messrs. Godwin's specialities, and these have been used in many hundreds of churches, and in no less than fifteen cathedrals.

Surface-facing coats of rich concrete for concrete walls are not as satisfactory as walls having uniform mixture throughout, according to the experience of Mr. Lincoln Bush, consulting engineer, New York, related in a memorandum to the committee on masonry of the American Railway Engineering Association. His observations on walls built for the Lackawanna Railroad during the period from 1900 to 1909 have shown that walls built with a uniform 1:3:5 mixture between 1903 and 1909 have given better results than those built between 1900 and 1903, when the practice of that road was to use a 2in. surface finish of 1:2:2 mixture against a body of 1:3:5 concrete. Defects and shelling off of the face may not take place for two or three years, and may then continue. Where a special surface finish is necessary for ornamentation, he believes it best to obtain it by bush-hammering, treatment with acid, or rubbing and washing while the concrete is green, using a broom and sponge of proper size to give the desired surface effect.

The action of chemicals on concrete is commented upon by Mr. George C. Koenig, superintendent of the Water Department at Harrisburg, Pa. At the filtration plant hypochlorite of lime is used as a sterilising agent, and is contained in two concrete solution tanks, separated by a division wall from the mixing compartment. Both the sides and division wall showed a great deal of pitting. The bottoms of these tanks, which are of granolithic finish, exhibited no evidence of disintegration. To check the trouble, the sides were cleaned off with compressed air, a coat of cement mortar applied, and the repairs finished with a coating of

bitumen paint, applied hot. So far, Mr. Kennedy reports, the protective coating has given satisfaction.

A meeting of the Institution of Municipal Engineers will be held on Wednesday, June 12, at the London Aerodrome, Hendon, N.W. (by the courtesy of Mr. C. Grahame-White and the directors of the Grahame-White Aviation Co., Ltd.), at 2.45 p.m., when the following papers will be presented for discussion:—"The Structures of the Future in Relation to Aviation," by Horace Cubitt, A.R.I.B.A.; P.A.S.I. (Member); "Some Suggestions for By-Laws and Regulations in Relation to Aviation," by Mr. B. Wyand, secretary of the Institution. The discussion will be open, and many prominent engineers (other than members of the Institution) and aviators have signified their intention of taking part in it. Admission to the aerodrome will be by ticket only, and tickets, price 1s. each, may be obtained from the secretary of the Institution.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Junior Institution of Engineers' Meeting at Nottingham. 39, Victoria-street, S.W. 8 p.m.

THURSDAY.—Surveyors' Institution. Country Meeting at Nottingham.

FRIDAY (MAY 31).—Surveyors' Institution. Country Meeting at Nottingham. Junior Institution of Engineers. "Standardisation of Engineering Catalogues," by Mr. J. H. Bourne, 39, Victoria-street, S.W. 8 p.m.

TRADE NOTES.

The Carnarvon Catholic Schools are being supplied with Shorland's patent warm-air ventilating Manchester grates, by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Under the direction of Mr. H. Green, M.S.A., Leigh-on-Sea, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to the new public hall, Leigh-on-Sea.

Messrs. W. and G. Foyle, 135, Charing Cross-road, London, W.C., have issued a catalogue of new surplus copies, from which readers will see the great reductions they are making in the prices of the best books on various subjects. It is well worth getting.

Messrs. Wm. Potts, Ltd., clock manufacturers, Leeds, have received instructions to make and fix a new eight-day hour-striking clock and bell for the College, Scarborough, which is now in hand. The dial will be of copper, with copper hands; figures and minutes painted and gilt, facing the sea.

Messrs. J. B. Joyce and Co., Ltd., Whitechurch, Salep, have received instructions to make a large clock with two dials for Sandway Church, Cheshire; and also another with two illuminated dials for Highcliffe Coronation Committee, Christchurch, Hants. They have just shipped a large quarter clock and bells to New Zealand, and are fixing clocks at Holmes Chapel Church, Cheshire, and Bacup, Lancashire. They also have a large one in hand for Ventspolder, South Africa.

At the Royal Horticultural Exhibition, at Chelsea, the Ideal Boilers of the National Radiator Company are being shown there by three firms—namely, Messrs. J. Weeks and Co., of 72, Victoria-street, London, S.W.; who are showing one of the "B" series boilers at Stand No. 69 in the Sundries Section; Messrs. Skinner, Board, and Co., Ltd., of Bristol, who have one of the boilers on view at Open Stand No. 69; and Mr. J. A. Charnock, of Norwich-green, Southall, W., who has two of the "B" series boilers exhibited at Stand No. 4, near Sundries' Tent. For warming the water used in watering the plants exhibited at the show, one of the 12-hp. Ideal Boilers has been installed by Messrs. Mackenzie and Moncur, Ltd., of Edinburgh and London, and can be shown in operation to visitors at any time.

Mr. J. W. Pike, Assistant Surveyor to the rural district council of Alton, has been appointed as surveyor to the Pontypool Rural District Council.

Mr. Reginald Smith, assistant-surveyor to the Ottery and Urban District Council, has been appointed surveyor and sanitary inspector to the Fordingbridge Rural District Council. The salary is £120 per annum, rising to £140, and there were 32 candidates.



ST. JOSEPH'S CHURCH, ALDERSHOT. Design by Messrs. H. R. and B. A. POULTER, Architects.



LLOYDS BANK: NE and SONS, Architects.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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Brick Ornament.

GOOD ENOUGH—FOR IRELAND!

The latest addition to Mr. Birrell's "Obiter Dicta" is that "the work of an architect in connection with schemes under the Irish Labourers Act does not require specialised knowledge." In September, 1906, when the Rules and Regulations under the Labourers (Ireland) Act, 1905, were being considered, some correspondence passed between the Council of the Royal Institute of the Architects of Ireland and the Irish Local Government Board with reference to the qualifications and remuneration of persons to be employed as architects under the Act. The Council then pointed out that the Draft Regulations relating to the qualifications of these persons, and the scale of their remuneration were not such as would induce skilled architects to seek employment in connection with buildings to be erected under the Act. The Council invited the Board to consider the disastrous results both to the ratepayers and also to the occupiers of the cottages which were bound to follow the employment of unqualified persons as architects. They also wrote in similar terms to the Chief Secretary, who, in his reply, stated that the Board "held—and he regarded their view as reasonable—that the work of an architect in connection with schemes under the Labourers Act did not require specialised knowledge."

That experience in the working of the Act has not confirmed this view is shown by the following extract from the *Freeman's Journal* of February 21, 1912:

Few Unions in Ireland are better provided with labourers' cottages than the Union of Kilmallock; but a report, which recalls Mr. Birrell's advice to the Councils to be more vigilant as to the character of materials and workmanship employed in the present in the erection of the houses necessitates a very large outlay in repairs. A meeting of ratepayers passed a resolution stating: "That we fear the stupendous sum of £140,000 which has been borrowed and put up to the present in the erection of labourers' cottages has been (inferred from the Inspector's report) wasted to a great extent in the erection of badly-built houses. That the amount of money spent in the repairs of cottages is also something to cause alarm." The ratepayers suggested that a fully-qualified engineer, "possessing a University degree," should, in the interests of economy, be appointed to inspect the cottages periodically. The Rural District Council has unanimously adopted the resolution. Twelve or eighteen months ago the Council ordered that a sum of £2,100 should be spent on repairs; but, according to a member of the Council, many of the labourers are sick in consequence of the condition of their houses.

The Council are, of course, aware that the experience of the Kilmallock Union is

by no means singular; that much dissatisfaction prevails throughout Ireland in account of the excessive annual cost of repairs to the cottages already built, and they therefore last month suggested to the Local Government Board that the time has arrived when the Regulations dealing with the appointment of architects under the Act might be amended, so that, with skilled supervision, future cottages might be more carefully constructed, and thus diminish the cost of maintenance. The letter embodying that suggestion was favoured in the first instance with the following reply:

Labourers' Department.

Local Government Board, Dublin
April 16, 1912.

Sir:—The Local Government Board for Ireland have had before them your letter of the 2nd inst., relative to the qualifications and remuneration of persons employed as architects under the Labourers Acts; and they desire me to direct your attention to the amendment of Rule 50 (f) of the Labourers Order of 1905 as contained in Rule 48 (f) of the Labourers Order, 1912, a copy of which is enclosed for the information of the Council of the Royal Institute of the Architects of Ireland.—I am, Sir, your obedient servant.

M. O'SULLIVAN, Assistant Secretary.

To C. A. Owen, Esq., B.A., F.R.I.B.A.,
Hon. Secretary, the Royal Institute
of the Architects of Ireland.

Anyone familiar with either the Rules in the Orders of 1906, or the amending Order of this year, knows, of course, that the test of qualification, and the amount of remuneration offered, are still ridiculously inadequate. This Council of the R.I.B.A. therefore again writes as follows:

Sir:—The Council of the Royal Institute of the Architects of Ireland have had before them your letter of the 16th ultimo, and the copy of the Labourers Order, 1912, which you forwarded for their consideration.

The Council, having compared the Rules in the Orders of 1906 and 1912, are of opinion that the amendment of Rule 50 (f) of the Order of 1906 as contained in Rule 48 (f) of the Order of 1912 will have the effect of insuring that only skilled persons shall be employed as Architects in connection with schemes under the Act.

The Council have already pointed out that they consider the scale of remuneration as laid down in the Order of 1906 is not such as would induce skilled persons to seek employment as Architects, and they the Council had to find in the Order of 1912 any Rule authorising increased remuneration.

The Council are confident that, if the remuneration were adequate, there would be no difficulty in getting properly-qualified persons to act as Architects, and they, therefore, trust that the Local Government Board will reconsider and amend the Rules relating to the qualifications and remuneration of persons to be employed as Architects under the Act.

It is the intention of the Council to send

copies of this correspondence to the Press and to the Irish Members of Parliament.—I am, Sir, your obedient servant.

C. A. OWEN, Hon. Secy.

The Assistant Secretary, Local Government Board, Ireland.

To that communication the following characteristically vague and evasive reply was vouchsafed:

Irish Office, Old Queen-street, Dublin.

Sir:—With reference to your letter of May 8, enclosing a copy of the correspondence which has passed between the Institute of the Architects of Ireland and the Local Government Board, I am directed by the Chief Secretary to say that he has given careful consideration to the Institute's representation that the result of the scale of fees proposed for Architects' work in connection with Schemes for Labourers' Cottages is that unqualified men are appointed, with results detrimental to the public interests. In reply, I am directed to say that among the new provisions of the Act of 1906 is that contained in Section 27, which provides that any person whom a District Council proposes to employ as an Architect shall satisfy the Local Government Board that he has sufficient knowledge and experience for such employment.

Rule 50 (f) of the Labourers (Ireland) Order made in pursuance of the Act prescribes what persons shall be deemed to be eligible for such employment, and recognises as eligible persons other than those who may be Fellows, Members, etc., of any recognised professional Association or Institute of Architects.

The Local Government Board hold, and the Chief Secretary regards their view as reasonable, that the work of an Architect in connection with Schemes under the Labourers Act does not require specialised knowledge. Their experience has shown that excellent work in connection with such schemes has been done at a moderate cost by men who did not claim in any way to be professional Architects. The Rule in question was accordingly so framed as not to apply to professional men alone, but merely to secure that the persons appointed should be thoroughly competent to carry out the work which devolves upon an Architect in connection with labourers' cottages.

The Local Government Board inform the Chief Secretary that they know of no case in which a Rural District Council has experienced any difficulty in obtaining competent persons who are willing to carry out their work at the rate of remuneration laid down by the Rules. The Board are satisfied that many highly-qualified men have applied to Rural District Councils for employment at less than the maximum fees fixed in the Order. They are of opinion that it would be injurious to give the names of any such persons, and I am to add that it is quite possible that these applicants are not among the members of the Institute of Architects.—I am, yours faithfully,

James H. Webb Esq.

W. R. DAVIES.

We really trust, as so many Parliament members, the Irish Members will demand from Mr. Birrell an explanation of this extraordinary attitude of the Irish Local Government Board. What is the use of a scale of fees if the Local Councils are

be more vigilant as to the character of materials and workmanship employed, when he denies proper supervision. It is in the face of the fact that £140,000 has been spent to a great extent on badly built houses, that it is maintained that excellent work has been done at a most rare cost by men who did not claim in any way to be professional architects. The whole procedure of the Board is of a piece with Mr. Lloyd-George's attempts to sweat the doctors in connection with the Insurance Act. It should be resisted to the utmost. The mischief done already is portentous. We have some hopes that presently here, when similar housing work is begun, such folly will not be perpetrated; but one never knows. What is good enough for Ireland to-day may be good enough for England to-morrow, and therefore every architectural society, every other kindred organisation, must back the protest of the R.I.A.I. with all the vigour of which it is capable.

THE NEW ENGLISH ART CLUB.

The contrast between the excellent hanging of the pictures at the forty-seventh exhibition of the New English Art Club and the general mood in favour at the Royal Academy disposes one favourably at the outset, and although there is a good deal of rubbish, the average is a fairly high one, and a few of the pictures will certainly make their mark.

Notably Mr. Orpen's "Cafe Royal" (156), more caricature as it is of the easily-recognisable strands of the painter, who have evidently fallen on absolute for crème de menthe, which does not agree with them. Mr. John S. Sargent is hardly as happy as usual with his "Reverberating" (194), and still less so with "Fallows" (172), in which his women's heads peer out at one from hollows of starved crumline. There is really more of Mr. Sargent in Mr. W. von Glehn's "The Picnic" (164), minus interest, and his smaller picture, "New England" (135), pleases us better. One of the best pictures in the room, Mr. W. Rothenstein's "Princess Badnabhadour" (147), we have seen before. The three children are charming; but we do not much care for the picture on the wall, which seems inclined to come down as part of the masquerade. What Mr. Henry Lamb's "Phantasy" (152) means we cannot guess, and we are still less impressed with his "Portrait" (188). Mr. P. Wilson Steer's "A Woodland Scene" (143) and "Bradnor" (153) are not up to his best work. Mr. C. J. Holmes's landscapes are all good, notably the "Blue Precipice" (146). So is Mr. Walter Sickert's "Le Champ du Pere Damore" (149).

Among other noticeable works we may mention, Mr. G. G. G. "Applewoman and Her Husband" (112); Mr. David Milne's "Unknown Thoughts" (158), and his "Night Piece" (140); Miss Alice Farmer's "The Solent: Stormy Weather" (157), and her "On the Pier, Yarmouth, Isle of Wight" (141); "The Thrashing Machine" (191), by Miss Lily Blatherwick (Mrs. A. S. Hartleick); and "Mortuary: the Black Rocks" (167), by Mr. Maxwell Armfield.

The water-colours and etchings are mediocre. "The Preparation" (59), by Miss Sylvia Gosse, is well drawn, but the subject is not attractive; and Mr. Mark Gertler's "Head of a Girl" (19) is clever.

REINFORCED-CONCRETE BUILDINGS.

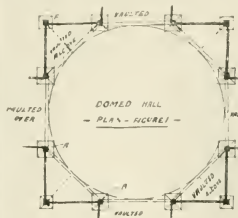
By WM. G. SHIPWRIGHT, Licentiate R.I.B.A. M.C.I., and Chartered Surveyor by Building Examination.

FAIRFIELD BISCUIT WORKS, LIVERPOOL.
A. Harter Crawford, F.R.I.B.A., Architect.

An effective piece of reinforced-concrete has been designed by Mr. E. P. Wells in the offices of the Fairfield Biscuit Works at Liverpool, the central dome and vaults of which building, formed on the lines of the plan

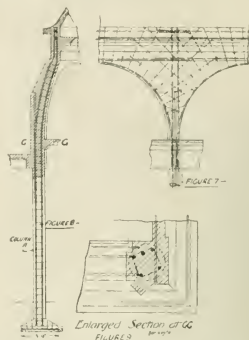
shown in Fig. 1, are the subject of the present article.

The domed apartment forms the central feature of the office block, the plan taking its inspiration from St. Stephen's Church, Wallbrook, being arranged on an octagonal base, supported on the



eight reinforced columns; the four opposite sides of the octagon forming semicircular vaulted approaches to the central chamber, whilst the four remaining sides are similarly arched to contain the vaulted recesses and lunette windows shown in the perspective sketch, Fig. 2. By this arrangement the central hall presents an imposing appearance, with a large central dome rising from a circular drum, supported on a symmetrical series of arches, with pendentives

being bent round the central core of the drum at the lower end, and the lower round the whole series of eight rods, which form the kerb on the top, band stirrups, CC, being



introduced to provide additional ties in both cases (Figs. 5 and 6).

The annular rods D.D., arranged in pairs inside the radial rods, are carried right round the dome, split at the ends and well lapped and wired at the joints.

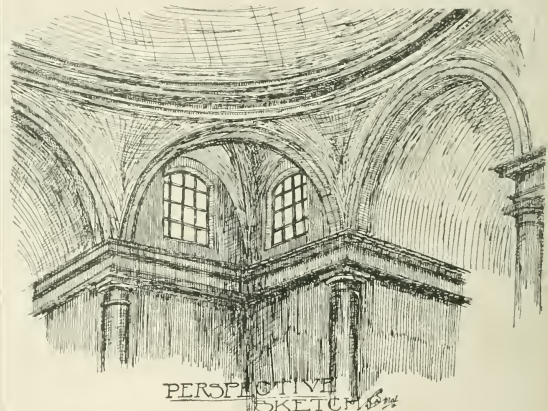


FIG. 2.

between which rise from eight columns equally disposed around the walls of the hall below.

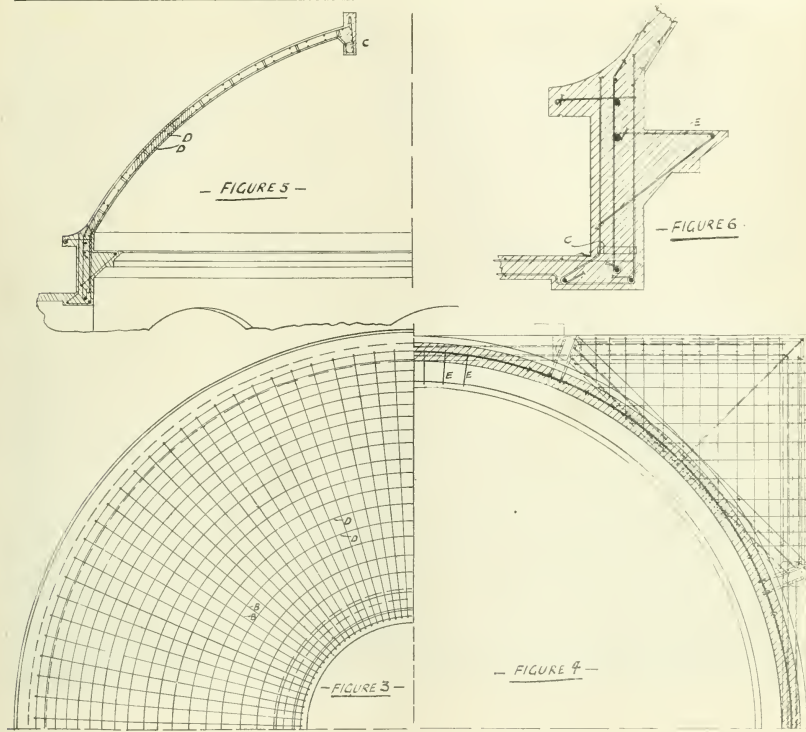
The execution of this scheme naturally presented some difficulty, and complicated features in the design of the reinforced concrete, in which material the whole has been constructed.

The central dome shown in detail (Figs. 3, 4, 5, and 6) is 6 ft. total thickness, constructed to a flat soffit, without any extra radial beams or other projecting members. Fig. 3 is a quarter plan, showing the arrangement of the rods between the kerb at the top and the drum at the base, a sectional plan of which latter is given in Fig. 4. By reference to the section (Figs. 5 and 6) it will be seen that the drum is reinforced by a series of annular rods of varying sizes, a large central rod forming the core. The small radial rods B.B., Fig. 3, are arranged on the dual principle on the lines shown, the upper series

The supporting arches at the base of the dome are arranged upon an octagonal plan, and reinforced with three longitudinal and closely spaced vertical rods. Detail Fig. 6 shows the secure manner in which the whole of these rods are linked together to provide an efficient steel core for the concrete. An annular rod is placed at the edge of the projecting internal cornice, with linking-rod E at close intervals, a similar arrangement applying to the external projection.

A plan of the reinforcement in the alcove is shown in Fig. 4. Dual rods closely linked with strap iron bonders are placed at the line of intersection or groin of the two small vaults, these rods being securely bound to the rods of the columns F (see plan, Fig. 1), and the kerb rods at either end. The dual lattice-rods forming the vaults are carried across the groin and turned downwards into the concrete behind the cornice.

The construction of the pendentives is



shown in Figs. 7 and 8, from which it will be seen that the rods of column A are carried up into the surrounding concrete, bent round to the curve of the pendentive, and carried

down in a concrete base 14 ft. in area, with a lattice reinforcement of small rods on the under side, linked with hangers, the whole being constructed on a sub-bed of 8 to 1 concrete 3 in. thick. Fig. 9 shows enlarged detail of the column and linking at the angles.

The construction of the four semicircular vaulted approaches to the central chamber is shown in section, Fig. 10. A lattice is formed of longitudinal rods, H.H. traversing the whole length of the vault and arranged in pairs between the dual semi-annular rods J.J. Strap-binders are employed at frequent intervals, and the whole of the metalwork is well bound at all the points of junction.

The construction of the cornice with four longitudinal rods and links is shown in detail (Figs. 11 and 12), which also show the beam beneath the semicircular vault. The whole of the dome and vaulted work is constructed in 5 to 1 graded concrete (3 coarse aggregate, 3 in. mesh, 2 sand, and 1 Portland cement), with an external asphalt covering, the total thickness being about 7 in.

A clever and effective design, accompanied by sound construction, unquestionable material, have produced another of those successes which mark the progress and illustrate the useful application of reinforced concrete.

CHEAP CHURCHES ON CHEAP SITES.

The Bishop of Chester presided over the annual meeting of the Incorporated Church Building Society, held on the 23rd inst., at the Church House, Westminster. Last year, he said, 2,668 new churches were aided, and

6,775 assisted in rebuilding or repairs, and more than 2,000,000 seats had been secured. Serious difficulties had resulted from the building of cheap churches. In his own diocese a church, consecrated in 1896, had had to be reconstructed, owing to defective and damp foundations, and also owing to the fact that the heating apparatus had been clumsily put in. Dry-rot often appeared in the buildings. Another defect in churches was the position of the organ. The habit of removing the instrument to the chancel, and very frequently shutting it up in what Sir Frederick Bridge called a "meat safe," had had a most pernicious effect on congregational singing.

Mr. Walter Tapper, F.R.I.B.A., one of the honorary consulting architects, in moving the adoption of the report, remarked that the craze for cheapness had resulted in the building of cheap and nasty churches. He strongly advocated the gradual completion of the permanent work by succeeding generations. Ecclesiastical architects had been fighting the question of the large organ, which tended to turn churches of the present day more or less into concert-halls.

The Bishop of Manchester, in seconding, spoke of the difficulties of church building in towns and districts which were rapidly developing. The first thing was to obtain a good site, not an obscure back street. A cheap site was almost always a bad site, and a good site, which was passed by many people, was dead on the long run. The report was adopted.

Grants of money were afterwards made in aid of the following projects, viz.: Building

well into the concrete forming the drum of the dome; the pendentive itself being formed by a dual lattice of small rods.

Columns A are formed with a circular concrete shaft reinforced with four vertical rods linked at close intervals and carried well



THE MARSHALL TIRE JACKET SYNDICATE'S WORKS

new churches at Clacton-on-Sea, St. James, Essex, £200 for the first portion; Lambeth, St. Anselm, Surrey, £150; and Pontypool, St. John the Divine, Mon., £100 for the first portion; and towards resealing and repairing the churches at Cadney, All Saints, Lincs, £50; and Woodchurch, St. John, Kent, £50. A grant of £50 was also made from the Special Mission Buildings Fund towards building a mission church at East Wickham, St. Michael, Kent. The following grants were also paid for works completed: Elland, All Saints, Yorks, £200; Chessington, St. Mary the Virgin, Surrey, £15; Cricklewood, St. Peter, Middlesex, £60; Dawdon, St. Hill and St. Helen, Seaham Harbour, £185; Penrith, St. Christolus, Pembs, £25; Huddersfield, St. Philip and St. James, Gloucester £30; and East Thorpe, St. Mary, Essex, £10, balance of a grant of £50.

THE MARSHALL TIRE JACKET SYNDICATE'S WORKS.

AN ADVANTAGEOUS, CLEVER FLOOR-SPACE ROOF.

Situated in a comparatively unknown part of the country, close to Willesden Junction Station, is a veritable little hive of industry, the Marshall Tire Jacket Syndicate, which has of late years made much noise and is here in Hythe-road outside the Marshall Tire Jacket Syndicate have recently opened new offices and works. We are not concerned here with the manufacture of the tire, but a most interesting feature of the use of special machinery, which can be found nowhere else in Britain, for the construction of the works

shops is interesting from an engineering standpoint.

Our illustrations are of the interior and exterior of the building, which is the principal one of the works. This is a fine room, 260ft. long by 60ft. wide, and has a "saw-tooth" roof with a north light. The most remarkable feature of this building is that there are no columns supporting the length or span of the roof other than the stanchions at the side. All the machinery, shaftings, and large pipes, as well as the horizontal ventilating flues are suspended from the roof, which leave the floor space beneath clear of any obstruction.

The constructional system is known as the "Warren" principle. This particular roof consists of five longitudinal bays on the "saw-tooth" principle, and is of steel throughout. The principal transverse girders, with outside steel booms, rest on steel stanchions every twenty feet of the length; these girders support the 12in. by 5in. longitudinal steel joists 15ft. apart of the width; the joists, in their turn, support the intermediate "saw-tooth" girders placed midway between each of the principals. All these members are riveted, and thus the whole of the steel structure of the roof is practically one piece. The roof is timber lined, covered with tarred felt and slates, and the fine north lights, glazed with rolled plate glass under the Heywood patent system of glazing, run the length of the building. The filling in of the sides is of 14in. brickwork in cement; but it should be pointed out that the brickwork does not support the steel structure of the roof. The concrete floor is 8in. thick, with a 2in. "Grandditch" surface laid out in 10ft. square bays.

A somewhat novel feature for a factory building is the colour scheme. This is carried out in "Paripan" enamel, the iron-work being of a light green shade and the rest ivory white, producing a very light and lofty effect to the interior of the building, although only 12ft. high to the longitudinal joists. The height is kept down so that the heating of the building shall be most efficient in winter.

The clear floor-space and the effectively-diffused northern light in the building has made it possible to arrange the various machines in such a way as to economise space without cramping. There is little doubt that it is due to the great size and clear floor space of the room that Mr. Marshall has been enabled to systematise the various processes in such a way as to allow the place of on-process to adjoin the position for the following process, and thus a perfect supervision over the manufacture can be exercised. The building was designed by Messrs. John Booth and Son, of Bolton, and erected under the supervision of Messrs. Gregg and Detmar, the architects.

ARCHITECTS AND THE CORPORATE SENSE.*

At the monthly meeting of the Transvaal Institute of Architects, held at the Board Room, Trust Buildings, Johannesburg, on Friday evening, April 19, Mr. M. J. Harris read an interesting paper, entitled "Architects and the Corporate Sense," the President, Mr. H. G. Neale, presiding. Mr. Harris, who is

* A Paper read by Mr. M. J. HARRIS, M.S.A., to the Transvaal Institute of Architects, on Friday, April 19, 1912.



THE MARSHALL TIRE JACKET SYNDICATE'S WORKS.

honorary secretary of the Institute, said:—Recollections of the part I have taken in recent discussions here have gone far to moderate my first feeling of gratification on being honoured by your request to read a paper to our Institute. It is chastening to reflect that, possibly, my turn has come to undergo that treatment which on previous occasions I have assisted you in meting out to others. That historic instance of unexampled patience—Job—once so far vented his well-tried temper as to exclaim:—"Oh, that mine enemy would write a book!" Perhaps I am here, for my sins, to make burnt offering on the fires of your criticism. If so, I shall not complain. Indeed, the main object of this paper is to initiate full discussion, the more effectively to draw timely attention to the important considerations involved in regard to the newly-developing relationship of "Architects and the Corporate Sense."

THE CORPORATE SENSE DEFINED.

By the corporate sense in its relation to architects, I mean that civic conscience the existence of which in architects is, or should be, betokened by a regard for the duties we owe to one another, to our profession, and to the State, and by a consciousness of what is due to our art, and to architects collectively, by the State and public. On grounds of historical accuracy, some may question the view that the corporate sense is a newly developing quality in our profession, and may urge certain evidences as to the existence of co-operative schools or guilds in the ancient and Medieval periods of architecture. Be that as it may, the architect—as we under-

stand the term—is a comparatively modern development, no longer merely the artist builder directing his skilled craftsmen, but a specialist having many complex responsibilities and faced with a multitude of problems undreamed of in the simpler civilisations of former days. And, similarly many problems which confront the corporate sense of the modern architect are of a new nature, solution of which cannot be attained by any study of precedent. Any inquiry as to historic precedent for the corporate ideal among architects will thus, if interesting, be of small practical use. It is of more serious import to consider how far the corporate sense is in existence among us.

OF PROFESSIONAL "ISHMAELS."

Sociologists place this sense, the civic consciousness, high in the scale of human progress. By analogies drawn from observation of extant savage races, and from the growth of human consciousness in the individual, some have deduced stages of evolution through which prehistoric man advanced towards civilisation. From barbarian beginnings in which the cruder animal instincts and the gratification of personal desires formed man's sole mental equipment, they argue developments in which the love for kindred, for tribe, and for race successively appeared. Without actually adopting any such theories, it is easy to imagine a similar course of evolution in regard to the development of the corporate sense among architects. We are, unfortunately, only too familiar with those instances in our profession where self appears to be the one consideration; too well aware of that

attitude which, in effect, cries aloud, "I am the artist, and in art there is My school and none other"; of those instances where our code of ethics and of professional usages have been dishonourably set at naught. Their hand set against their brethren, these are the Ishmaels of our profession—each of them the extant barbarian whose selfish attitude would constitute him the base of the evolutionary argument.

SAFEGUARDS OF THE CODE.

It is, however, a satisfactory evidence of the extent to which the corporate sense does obtain among us that throughout the civilised world architects have banded together in associations and institutes such as ours, for the furtherance of common professional aims. Standards of qualification have been set up; codes determined embodying, from wide experience, the minimum fees or charges compatible with honourable practice; clearly defined rules have been laid down demanding our proper conduct of the high responsibilities which fall to our lot in discharging the duties we owe to those who entrust us with the direction and care of their enterprise and interests. The recognition of a code of ethics among all artists and professional men is, in fact, universal. If this were not so, if artists and professional men—the seers and prophets of our day—were not alive to the dangers of the increasing commercial tendency of this age, we should all, ere long, be shrieking our wares in the market-place, and bidding against one another in values of intellect and of worth of soul, to obtain the favour of popular patronage. How much intellect, and how

which clearly would survive the market? It would slowly be seen that the rule of ethics in a profession, the highest interests of art and architecture, and the interests of the public, are not antagonistic, and that the public are not the persons of any movement against the standards advocated by the State. Ostracism from the ranks of the professionalists is the extreme penalty meted out to the offender, but in serious flagrant cases of ethical offence ostracism is obviously insufficient. The law must punish severely, and the public must be able to judge those who are the standards of our profession and safeguards. If our previous statement that these safeguards are necessary in the highest interests of art and civilisation be established, then our law is proved inadequate to the needs of our time. It is to the corporate sense among us that we must look for a remedy of those needs, and we shall inform State and public as to the urgency, upon grounds of national import, of newer legislation. When, by such formulation, our corporate duty has been performed, I trust that we shall not need to labour the point in regard to the duty of the State towards fostering and encouraging the honourable ethical ideals of associated professional men and artists.

COMPETITION AND PUBLIC BUILDINGS.

The mention of State encouragement brings us naturally to a consideration of the State policy in regard to public buildings, as affecting the evolution of a national architecture. If we do not feel this question particularly sincere, then indeed, in the country, some of us must be dead. The subject is one that would suffice for more than one evening's consideration. It has been discussed at great length in innumerable issues of our local Press, and in no subject have so many false issues been raised to obscure the underlying truth. Those of us whose possession of the corporate sense is not merely hypothetical, but who hold that the public buildings of a country should represent the highest artistic talent of that country, and that that talent should be discovered in every instance or introduced by means of competition open to every artist. We do not suggest that such competition be limited to the artists of the country, but that only the very highest obtainable talent should be sought, and that the country which is endeavouring to stay abreast of a succeeding generation of artists, our State policy in regard to the design of its buildings has alternated from (in one favoured instance) the bestowal of patronage to the departmental method. More strangely still, the departmental method has been restricted to the designing of its buildings, and has not been extended to their construction, which latter is still carried on under the system of competitive tender by builders. One would have thought it more logical to carry out construction departmentally, and to obtain the designs (in which the personal factor is of vital importance) by the competitive system. A clear case of topsy-turvyism! And what is more serious, a clear indication that the Government of our country is unaware of, or indifferent to, the high desirability that its affected citizens be given that incentive to emulation in their art which can be afforded by the holding of open competition whenever one of the public buildings of the country is to be designed; that in short the Government of our country is unaware of, or indifferent to, the consequences of its attitude, and that it discourages men in the development of a South African national architecture. "Major and minor," the Government's examples to some extent influenced municipalities. In a recent instance, when several valuable pictures were presented to a municipal art gallery, the donors flouted the entire body of practising artists in this country by an anonymous gift of the building which was to be erected at the expense of public funds should be designed (without competition) by an architect having professional practice in London. This by way of encouraging South African art!

THE OPPONENTS OF COMPETITION.

It would be irresponsible to expect a disinterested view of the competitive system

from those who will sacrifice all else for the gratification that is theirs when bestowing patronage; from those who habitually receive such patronage; or from those whose personal advantage is best served by every increase of departmental responsibilities. The opposition to the competitive system, both in this country and elsewhere, is almost invariably traceable to these sources and the tributary influences. Nepotism and court favour are, happily, less evident here than in older countries, but we have made their appearance, and I have been justified on grounds of Art! I cannot devote further time to elaborate this aspect of my subject. Much remains to be said as to the manner in which competitions, when held, have at times been shamelessly thwarted by those who nominally were the promoters, and by the faulty awards—for transparently interested motives—of certain assessors. Suffice it now to say, in anticipation of our opponents, that the competitive system, where it has failed in the past, has failed for lack of that proper honest use without which every instrument must fail. And thus we have come to a further demand on the corporate sense among us, requiring the service of our collective and individual interests to arouse their opinion upon the means now adopted in the production of its national architecture.

EDUCATION.

But our responsibilities and duties do not end there. We cannot hope for sympathy in our strivings for the highest expression in architecture, to carry the understanding of the public as to the aims and advantages of art. Ours should no longer be the "still small voice" which nowadays nobody hears; propagandist programmes, and the support of all liberal education schemes, both within and without our profession, seem to be necessary to our progress—nay, to our continued existence. Education within our profession, unless we maintain a high standard of ability among artists who may be trained within our own borders; education beyond the confines of our profession, the better to counteract the uncertain tendencies of a democracy without culture. It is our duty as architects to see to it that our educational systems shall not produce a race artistically atrophied. South Africans have been decised as an inartistic, unimaginative, and unmusical race. We know it is not so. There is, nevertheless, much to be done in certain quarters to overcome the apathy which owes its rise to an impression that art is the exclusive interest of the lank-haired, the bespectacled, and the anemic. We live in a vigorous colonial atmosphere and, where academic abstraction fails to attract, the influence of the constructive artist may succeed in leading to higher things.

SCHOOLS OF TECHNOLOGY.

In connection with the question of education, it would be impossible to pass without appreciative reference the efforts made by our Government in the matter of the Schools of Technology and at so-called "Trades Schools" throughout the country. Care must be taken that the rudimentary instruction there afforded shall never be regarded as in any sense obviating the necessity for apprenticeship, for professional training, and practical experience. If vigilance in this respect be relaxed, we must expect to find an abundance of that partial knowledge which is proverbially dangerous—to the detriment of the general efficiency. Nor can appreciative mention be withheld from the individual action of Mr. Herbert Baker in founding a scholarship enabling selected South African students to attend the British School at Rome. It would, of course, be easy to overestimate the value of classical study; some of the most impressive architecture in the world was produced without the slightest inspiration from the classic tradition, or by men who had never travelled further than a hundred miles from their native town; nevertheless, the source of culture thus made accessible to the more fortunate of our students is to be questioned, for possibilities for which they, and we, are grateful to Mr. Herbert Baker, who has

given out of his success to the honour of the profession to which he belongs.

INFLUENCE UPON STATE AND MUNICIPAL BODIES.

The further duties which devolve upon us in the corporate sense, and to which duties I can only briefly refer, are those of the influence we should exert upon State or municipal authorities in connection with legislation affecting town planning and cognate matters, and in supporting any one of our number, when occasion demands, in litigation which may result in precedent affecting the interests or the status of our art. Referring to the first matter, that of town planning, the lack of any corporate power to exert this influence is sadly evident, even in the comparatively young town of Johannesburg. Many a fine street is terminated by a mean vista of hideous structures—I could name many instances—and the worst feature of all is that surviving evidence of the attitude of the public, as indicated by the action of State and municipalities, have also been considered. I propose to conclude with some considerations as to the attitude of that mentor of the public—the Press. It is distinctly depressing to recall that in all the discussion which has taken place at various times on matters deeply affecting the practice of our art, the mass attitude of the Press, which contains a large portion of that which comes under our notice in Johannesburg and Pretoria—is distinctly unfriendly to the South African architect. It matters not that he it was who designed, not discreditably, we hope, the many fine buildings erected at Capetown, Port Elizabeth, Durban, and elsewhere (throughout the country) to say nothing of Johannesburg and Pretoria) during the past twenty years. Certain of our Press organs are wont to write about our art, deplore that it is not art, to regret that it is so poor, or so unnational, or so uncharacteristic, or so unsuited to our climatic conditions. All of us have seen such comment; its appearance is generally coincident with the close of some public competition, or during some discussion when the claims of other than the South African—or of other than the luckless competitors—are to be advocated; at whose behest the advocacy we can merely conjecture. But is such comment just, is it justifiable on any ground of either patriotism or of art? Let the conscience supply the answer: We cannot, however, obtain complete satisfaction with the co-existence of a just and honest Press. In the existence of such—"a righteous remnant"—is our hope. The Press, the greatest factor in the evolution of democracy, is the indispensable ally, without whose aid we cannot hope to succeed in our plea to the fair sense of democracy. When our corporate sense has been allowed with corporate power, we shall, perhaps, have a further means wherewith to persuade Government, municipalities, and people that local art should be fostered and encouraged—not discouraged—as "the visible flower of civilisation, reflecting honour upon the race that has produced it." (Applause.)

THE PRESIDENT.

In thanking Mr. Harris for his eloquent and valuable paper, suggested that in view of the undoubted value of its contents, the discussion be allowed to remain over till the following monthly meeting, so as to give members a fuller opportunity of stating their views on the many points raised by Mr. Harris.

This suggestion was agreed to, and the meeting closed.



THE TOMB OF OSCAR WILDE. PARIS.—MR. JACOB EPSTEIN, SCULPTOR.

TOMB OF OSCAR WILDE, PARIS.
To-day a private view of this monument will be held at 72, Cheyne-walk (near Crosby Hall), Chelsea, and a public exhibition at the same address, by card of admission, is arranged to take place from June 1 till the 30th. Herewith we reproduce a photograph of the work, which cannot fail to impress all

beholders by reason of the originality of treatment adopted by the sculptor, Mr. Jacob Epstein, of Chelsea.

The Assyrian-like austerity of the conception comprises an emblematic figure, the "Winged Messenger," which is handled with characteristic severity of line. Presumably, the trumpetless herald is in-

tended to personify Fame, ever on the wing, and naked, like Truth, with arms thrown back to expedite progress, and powerfully equipped with pinions equal to the feat of outstripping Time. The enrichment of the head comprises small representations of Envy, Pride, and Luxury.

The tomb will be erected to mark the grave

USCAR WOOD in Pere La Chaise Cemetery, Paris, so soon as its exhibition in London begins. The monument weighs about twenty tons, and is formed of two blocks of Derbyshire limestone. The cost has been defrayed by an anonymous donor.

THE DISTRIBUTION OF STRESSES IN CERTAIN TENSION MEMBERS.

A paper on the above subject was given by Mr. C. Batho, A.M. Can. Soc. C.E., at a meeting of the Canadian Society of Civil Engineers, held in Montreal, on April 25.

It is becoming generally recognised among engineers, said Mr. Batho, that a correct knowledge of the strength of structural members can only be obtained by breaking tests alone. This is more especially the case with built-up members in which it is probable that, as soon as some part reaches the elastic limit, the distribution of the load may change, so that the breaking load and the appearance of the specimen at fracture may not give any true guide to the action of the parts under working loads. The most satisfactory way of obtaining a knowledge of the latter is by measuring the actual strain distribution under working loads, or, at any rate, at loads within the elastic limit of the parts, by means of some form of extensometer. Mr. Batho then described at length experiments made at McGill University to determine, by means of strain measurements with a modified form of the Martens extensometer, the distribution of stress in single and double angles, with riveted and end plates loaded in tension, and to compare it with the theoretical distribution under different assumptions. Experiments are still in progress on similar members in compression and on built-up members, and it is hoped that the present paper may be only a first contribution on the subject.

The experiments on built-up members indicate that these do not, in general, act as a solid piece, but that the separate parts must be considered as eccentrically loaded members subject to constraints. From this it appears that the only way to build up a satisfactory theory of the action of such members is to commence with the problem, which is important in itself, of a uniform piece subjected to an eccentric load, and to work up gradually to more complicated members.

In his remarks on built-up members, Mr. Batho stated: A built-up tension or compression member is one which is made of two or more simple sections, such as angles or channels, fastened together by rivets and by tie-plates, lattice bars, or other connections, as in the case of a large column. Probably the simplest form is the double angle considered above. Such a built-up member is usually considered as acting like one piece, and the forces in the tie-plate or lattice connections are found on the assumption that, if any bending takes place, the whole member bends like a beam. The experiments show that this is not true for the specimens tested, and it would probably be more correct to consider such a member as an assemblage of simple members, each trying to bend about its own neutral axis, but more or less constrained by the subsidiary lacing, etc. The only way to arrive at a correct theory of the action of such structures is to consider the simplest cases first, and to approach gradually the more complex by introducing one constraint after the other, and finding their effect by experiment and analysis. An example will make this point clear. Consider a column in the form of a rectangle built up of four angles, connected by tie-plates or lattice bars, and loaded through two end plates riveted to the angles at the ends. The ordinary theory would assume that the whole member behaves like a beam, the tie-plates or lattice bars simply taking up the stress like the web of a girder. According to the theory advanced, the four angles would be regarded as trying to bend about their own neutral axes in the way a single angle has been known to behave above, and the tie-plates would restrain them against twisting, and

so would themselves be under bending stresses, the whole action being, of course, somewhat complicated. It may be stated that actual extensometer experiments on such a column, carried out under the direction of Professor H. M. Mackay at McGill University, entirely bear out this view, the stresses in the tie-plates being found to be tensile on one side and compressive on the other.

CONCLUSIONS REACHED.

The chief conclusions to which the present paper leads are:

1. That the form of extensometer described is very accurate and simple in operation, and that it is possible by its means to obtain very closely the distribution of stress in a piece of material under load.
 2. That experiments made with these extensometers on tension specimens of uniform cross-section subjected to eccentric axial loads not in an axis of symmetry of the cross-section bear out very clearly the general theory for such a case.
 3. That the point of application of the load for a single-angle member loaded through a plate riveted to one of its legs may be taken as in the line of rivets and at the common face of the plate and angles.
 4. That the end plate, under ordinary conditions, offers no appreciable restraint to the bending of such a member.
 5. That a member consisting of two angles riveted together through a connecting plate does not act as one piece, but that each angle bends about its own neutral axis, and that it is not always an advantage to attempt to make it act as one piece by further constraints.
 6. That a built-up member should not be regarded as a single piece bending as a beam, but as several pieces each trying to bend about its own neutral axis, but restrained from doing so by the subsidiary members, such as the tie-plates or latticing.
- Mr. Batho expressed his thanks to Professor H. M. Mackay at whose suggestion the work was commenced, Professor E. Brown, and Mr. F. P. Shearwood, for their personal interest and advice, and Mr. S. D. Maenab, of the McGill University Testing Laboratory, who was associated with him throughout in the experimental parts of the work. He is indebted to the Dominion Bridge Company for the specimens used in the tests.

BRICK ORNAMENT—VII.

PILLARS AND COLUMNS.

The first example, Fig. 1, illustrates the ordinary simple, square, brick pillar, as used

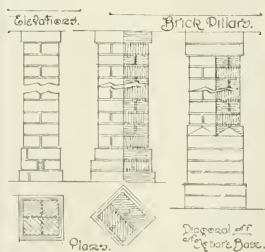


FIG. 1.

in many of the commonest positions. By placing it on the diagonal, as shown in No. 2 of the same figure, it is at once turned into a more ornamental feature. A row of such diagonal pillars, preferably paired, introduced on a veranda, porch, or similar feature, produces a good break in the plain monotony of a structure. Quite a fair amount of ornamental effect is so produced, the side cost incurred for its production being really that of a square pillar in perfectly

plain brickwork. Figure 2 illustrates another composite method of using plain bricks, with very little cutting, on the diagonal or cross. Whilst such light work could not be used where a large amount of weight had to be supported, still there are many positions where it might be introduced as an inexpensive item, having a certain amount of decorative recommendation, such as a light porch, verandah, garden pavilion, summer-house, or for pergola work especially; it has

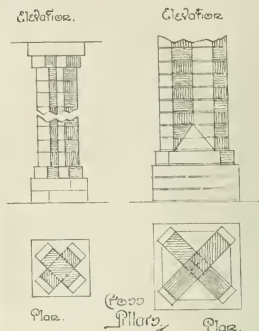


FIG. 2.

that degree of picturesqueness so desirable when combined with foliage. Such effects with the latter class of work appear all the better by being attained with the simplest methods possible. An extension on the same plan, producing a pillar of still bolder appearance, with more strength, is shown by the second illustration on this figure. The succeeding elevations, in Fig. 3, are also based on the same plan, but have a little moulded brick introduced by way of some slight elaboration. Nos. 2 and 3 on this figure also having one or two slightly-cut and rubbed splay bricks further introduced in the angles. It should be remembered that such pillars (take a quarter less weight than a solid square of the same area.) Fig. 4 also illustrates a useful method for picturesque work

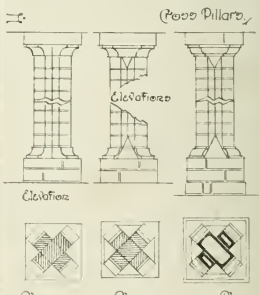


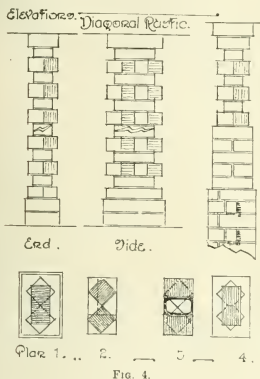
FIG. 3.

of a garden character. These pillars are exceedingly light, as should be noted, whilst they might answer the purpose of light pergola work, running in pairs, and when set in cement. They are not, of course, adapted to take a heavy load or for unsheathed positions. As seen, it involves the cutting of a brick to obtain the diagonal features. No. 3 on this figure forms the strongest method of construction in this light type, but

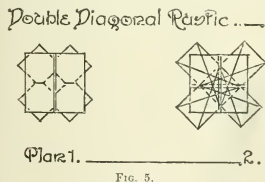
involves more cutting and wastage than the other methods, therefore proving a little more expensive than might appear at first. A centre joint to the diagonally-laid half-bricks, as

Nos. 1, 2, and 3 on Fig. 7, the coursing naturally being reversed to various sides as the work proceeds, to obtain a good bond. The narrow, 6in. face gives quite a refined character to the regular octagonal pillar in this class of work. It is, however, a little more expensive than the ordinary solid pillar, even with the use of splay, owing to the extra cutting necessarily involved. In some cases, where the loading admits of same,

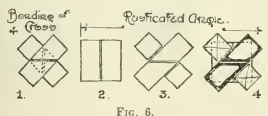
obtained by this method would readily be slighted that no actual exaggeration or distortion is occasioned thereby. In fact, the slight relief formed in this respect would



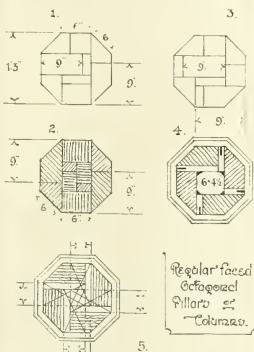
shown by No. 4 on this figure, also produces a slightly stronger pillar, at the same time giving equality of projection to the corners. By a combination of joined pairs of the same type, a strong, serviceable pillar is produced, quite suitable from a constructive point of view for most positions to which it might be adapted, as illustrated by Fig. 5. To obtain a fairly fine and most effective projection to the corners, cutting is necessary, either as



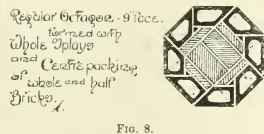
shown previously or by No. 1 on this figure, or by the method illustrated in the plan on Fig. 3. In Fig. 5 the second plan shows the use of a whole brick by the crossed lines, and their halves or bats, in the alternate bonding course. The position of the whole brick being reversed alternately in these courses as the work proceeds, less cutting is involved than by the first method. The effect of this pillar, with its greater projection, is of a bolder type; in some cases it might be considered coarse. Fig. 6 illustrates a method



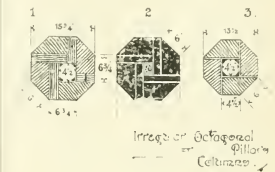
of reducing this type to its minimum in a matter of cutting, and therefore expense, by use of the splay-bricks, where such might be readily obtainable. (It should also be noted that the cross pillar can be formed similarly in this dimension at a slightly reduced cost.) The alternate courses for breaking joint correctly being shown in the sequence—1, 2, 3, and 4—as built over one another. Regular-faced octagonal pillars may also be readily formed with the splay-brick, as shown by



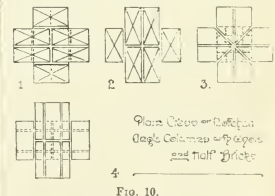
The expense can be slightly reduced per column by building it hollow without the centre packing shown in Nos. 2 and 4. The latter number shows another method of solid construction which might slightly lower the cost by using the splay-bricks whole and filling in the narrow portions with a couple of thick tiles. The cut ends of latter, turned inside, could be left quite rough, forming a better bond. The bat to the centre would not require fine cutting either, whilst the appearance of the tiles on face would also add to the picturesque nature of the pillar for many purposes. No. 5 illustrates another method to obtain an extra strong bond where such might be essential, the alternate courses of splay being cut as indicated by the dotted lines, and a whole 9in. brick built in alternately in various reversed positions of the



successive layers, as shown by the crossed portions. Larger regular octagons, with a 9in. face, can be readily and cheaply formed with whole splay, on the plan illustrated in Fig. 8. Here there would be very little cutting required in the construction of such a pillar or column. No wastage would be involved either, the centre packing being made up with two whole 9in. bricks and half-bricks, the cut corners of the latter going to fill in the small interstices where such occur. The plan also adapts itself readily for reversing and breaking joint alternately, thus forming a good bond, the splay coming into the positions indicated by the dotted lines. In some positions, again, this might well enough be constructed hollow if built in good cement, for pergolas, etc. Whilst for a fairly light porch packing of very rough concrete might be used. Fig. 9 illustrates three examples of the irregular-faced octagon, the difference of width between the two faces



merely make a break in the otherwise mechanical monotony of the column, introducing a more picturesque element. No. 1 on this illustration shows the construction by whole splay-bricks, two whole half-bricks, and a cut half-brick. Most of the filling in the smaller lengths can be packed with the cut ends from the latter, whilst the bat for the centre also lines up in a convenient size for using the whole, or most of the material without wastage. The cutting required is neither large nor fine, at the same time forming a very convenient method of construction. Even this small amount of cutting can be dispensed with entirely by the use of whole half-bricks or Queen closers continued right across, as shown by No. 2. The small centre left might well enough be filled with fine cement concrete. In some instances this type would prove of special value, as it admits the introduction of reinforcing-bar, 2 1/2in. by 2 1/2in., which, with foot and capping-piece, would be useful in lightning whist



might otherwise be a somewhat unwieldy column. This would be a consideration where space happened to be somewhat restricted and appearance desirable. No. 3, again, gives a little more inequality of facing, although not considerable. At the same time, the construction is simplified to a greater extent. It would undoubtedly prove exceedingly useful for a large amount of work, where the cost had to be carefully studied. Neither of these examples could be considered expensive, whilst No. 2, comparatively speaking, entails no more extra labour than the formation of an ordinary nine by nine or any other regular brick dimensioned square block which is supposed to be "cheap." The octagonal column is an exceedingly good form, adaptable to much ornamental work, yet it is very seldom used, mainly under the erroneous impressions of the impractical "practical" man, who views it with suspicion as being "very expensive." Fig. 10 illustrates the plain cross or notched angle column, another picturesque type for country, suburban, and garden work. Formed with ordinary bricks in the cheapest manner, without any cutting, it is shown by No. 1, with its alternate coursing in No. 2. Although this gives a fairly good bond, suitable for a great deal of work, it will be seen that straight cross joints of plain lengths are bound to occur right up the whole length of the column. For some work this would be inadvisable. By adapting the splay a better system of bonding is formed, as illustrated by No. 3, the alternate courses being joined

and again varied alternately, as shown by the dotted lines, using two half bricks and a whole brick, which effectually breaks the mortar joints beneath. No. 4 again, shows a still simpler method, with a perfect bond, by leaving the Queen corner on the outside. The latter would produce a system of jointing which is adapted for the introduction of a quite effective colour lining or pattern work.

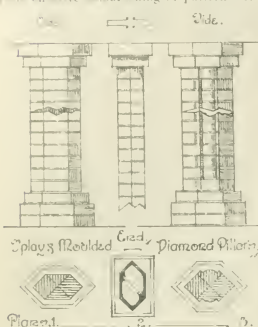


FIG. 11.

Thus, again, the cost of production could not be considered as more than that of an ordinary square brick in a regular brick dimension. Its difference, both in general appearance and value, as a more ornamental accessory, cannot be denied. Illustration 11 also shows another simple and original design for a pillar, constructed either with the play-bricks or any other type of moulded bricks like those shown. No cutting is required, it is readily and easily adapted, and when required in alternate coursing it forms a good bond. The spray bricks can also be

the projecting members, there is, however, some difficulty with the centre bond where such has to be considered. It could be broken effectively by every few courses, as shown by No. 2 plan, the pointed coping being adapted on end in the angles and tied in alternately, above and below, with whole bricks, as shown by the dotted lines. This method, however, involves a fair amount of cutting. In event of the coping bricks being omitted, the same method of breaking joint is secured by a whole brick reversed alternately where such occur, as shown by the arrow-heads.

FACILITIES AFFORDED BY THE LAND TRANSFER ACTS FOR CHEAPENING AND SIMPLIFYING DEALINGS WITH LAND.

The Registrar of the Land Registry desires us to draw attention to the great facilities afforded by the Land Transfer Acts for the removal of cost, delay, and inconvenience on dealings with land.

The Acts apply to all parts of England and Wales; but the greatest facilities are obtainable in and near the County of London, where a large and efficient local staff is established. The Acts also make full provision for the establishment of local registries affording similar facilities in other parts of the country.

Land registered with absolute title* can be dealt with at rates, including all official and professional fees and expenses, greatly below the usual costs incurred on like transactions with unregistered land, and without any delay at all. Short, simple forms of conveyance and mortgage are issued by the registry, and are sufficient for ordinary transactions. Registration can be effected by post. Full information as to procedure is given in reply to inquiry, which may be made either at the Land Registry, Lincoln's Inn Fields, London, W.C., or by letter addressed to the Registrar at the same address. Landowners can conduct inquiries or transactions either through their solicitors or personally themselves, as they may prefer.

HOW TO APPLY FOR REGISTRATION.

The best moment to apply for registration of the title is immediately after a purchase, and the title is then in good order, and can usually be registered as absolute without any trouble or expense beyond the official fees, which are as follows:—

| Value of Land. | Fees. |
|--------------------------------|---|
| £50 or under, | £25 |
| There to £25 | 3s. |
| £25 £100 | 1s. 6d. for every £25 or part of £25 |
| £100 £1,000 | £3 for the first £1,000, and 1s. for every £25 or part of £25 over £1,000. |
| £1,000 £10,000 | £7 for the first £10,000, and 1s. for every £50 or part of £50 over £10,000. |
| Over £10,000 | £11 for the first £10,000, and 1s. for every £50 or part of £50 over £10,000. |

As a rule an application for registration with absolute title is made by posting or sending to the registry all the deeds and papers relating to the property, with a form of application (supplied by the registry and a postal order or cheque for the fee. The department examines these, and makes any inquiries that may be necessary. It inserts notice of the application in the *London Gazette*, and occasionally in the *Times*, or a local paper. The formalities are usually completed within a month of the receipt of the application.

THE EFFECT OF REGISTRATION.

The validity of the title is thereafter guaranteed by the Government, and the owner's costs on future dealings are either nil or are reduced to a fraction of their present legal amount. In either case the entire cost of the original registration is recouped several times over in the very first dealing after it.

* For brevity, the term "absolute title" is used to include "good leasehold title," which is its practice in the case of land applied to leasehold land. See page 776 of No. 2984.

This will be seen from a few examples at typical values:—

COSTS.

| Value of Property. | Land not on the Register (each party). | Land Registered with Absolute Title. | |
|--------------------|--|--------------------------------------|--------------------------------|
| | | Registry Fee (each party only). | Solicitors' Fees (each party). |
| £ | £ s. d. | £ s. d. | £ s. d. |
| 50 | 3 0 0 | 0 16 | 0 30 |
| 250 | 5 0 0 | 0 12 0 | 1 0 0 |
| 500 | 7 10 0 | 0 10 0 | 2 0 0 |
| 1,000 | 15 0 0 | 3 0 0 | 5 5 0 |
| 2,000 | 30 0 0 | 6 0 0 | 6 6 0 |
| 35,000 | 15 0 0 | 15 0 0 | 15 0 0 |
| 100,000 | 70 0 0 | 30 0 0 | 10 10 0 |

The evidence given before the recent Royal Commission on the Land Transfer Acts shows that legal assistance has not infrequently been dispensed with on dealing with registered land. In such cases this column is saved, reducing the vendor's costs to nil, and the purchaser's to the registry fees only.

Future purchasers and mortgagees have no need, and no right, to make any investigation into the title—the register being sufficient for all purposes. The title is always kept perfectly clear and up to date, and like the title to stock ready for the market at a moment's notice. This increased marketability cannot fail, when generally appreciated, to add to the value of land. In Australia registration is commonly reckoned to increase the value for sale by 10 per cent.*

ABSOLUTE TITLE EASY TO OBTAIN ON A PURCHASE.

It is sometimes thought that an absolute title is difficult to obtain, but this is not the case. During the last few years, great numbers of absolute titles have been registered by solicitors based here and the County of London, and from the experience thus obtained it can be stated with confidence that an ordinary purchaser, who has bought under ordinary conditions of sale, and whose solicitor has investigated the title in the ordinary way, having regard to the nature and value of the property and the circumstances of the case, will have no difficulty in obtaining an absolute title on the materials already in his hands.

THE LANDOWNERS' OPINIONS.

The evidence given to the recent Royal Commission by numerous landowners who had had experience in registering absolute title, and of subsequent dealings under it, was unanimous to the effect that it was easy to obtain, and entirely satisfactory in its working, repaying the initial cost in a comparatively short time, and saving trouble and delay as well. The reason why this opinion is not now more extensively held by the great body of landowners in and about London (and it is notable that several of the witnesses referred to were from outside the county limits) appears to be simply that in the great mass of cases they have not taken advantage of the facilities which the Acts afford, but have remained content with possessory titles—which confer the minimum benefit instead of applying for absolute title, which involves no extra cost, and represents the system in its final and most satisfactory form. During the last few years registrations with absolute title have been increasing between 2,000 and 3,000 having been entered since 1908—partly owing to a practice, lately authorised, of offering absolute title in very obvious cases. It is hoped that this improvement will continue to extend until absolute title becomes (as it was always intended to be, and must ultimately become) the normal form of registration.

COMPULSORY REGISTRATION IN LONDON.

It seems desirable to add a few words of explanation as to the compulsory system of registration of title on sales in the County of London, about which a certain amount of misapprehension appears to exist.

The object of the Acts is registration with absolute title. But it would obviously be impracticable to compel registration of an

See the evidence of Mr. Hoag (of the English and New South Wales Bar) before the Royal Commission on the Land Transfer Acts in Scotland, published 1909, Q 1807, 7, 11, 1948 and 9.

absolute title in all cases, as occasionally there might be difficulty in producing the necessary proofs. For this reason registration with "Possessory Title" (which requires only prima facie proof) is alone most compulsory. Possessory title takes a considerable time before mature, and on dealings taking place before the maturing process is complete the full benefit of the system is not obtained. (See Note A.) People seldom do more than they are obliged to do in any matter that they do not understand, and so it has come to pass that for many years the overwhelming majority of the titles compulsorily registered were possessory only. Consequently, not much relief as regards cost has yet accrued on dealings with compulsorily registered land. This has caused a very inadequate idea to prevail among the public generally as to the capabilities of the Acts in facilitating and cheapening the transfer of land.

There is no reason whatever why nineteenth of the purchases registered in England should not be completed with absolute title. This applies with even greater force to purchases of land already registered with possessory title (which now number between 4,000 and 5,000 every year) than to purchases of unregistered land. No extra fee or expense of any kind need be incurred. No additional formality need be observed except to leave in the registry, along with the transfer, the deed and papers already in the applicant's possession relating to the title.

NOTE A.

MEANING OF THE TERMS "ABSOLUTE," "GOOD LEASE-HOLD," AND "POSSESSORY" TITLE.

There are three main ways in which land may be registered under the Land Transfer Acts—namely, with Absolute Title, with Good Leasehold Title, and with Possessory Title.

Absolute Title.—It is not difficult to explain what Absolute Title means. It means that the deeds have been officially examined and have been found to show a safe holding title, and that the ownership is guaranteed by the Government. The registered owner for the time being can take possession of the land without delay, without risk, without cost, and without trouble. The purchaser can acquire it like any other property without any special investigation, trouble than is involved in reading a few plain entries in a book, and in filling up a short printed form of transfer to sign for the title. The title is the same as that shown in the table opposite (para. 6).

Good Leasehold Title.—Leasehold land can seldom be registered with an Absolute Title, owing to the inability of lawyers to find a title to produce in evidence of the Freehold Titles, and so to prove the original validity of the lease itself. A special form of registration, called Good Leasehold Title, has been devised to meet this state of affairs. It amounts to a guarantee (by the Government) of the leaseholder's title to the land, but it does not guarantee the original validity of the lease itself. At the same time, it may be remembered that on ordinary sales of leasehold land the validity of the lease is guaranteed by the purchaser having neither the wish nor the right to inquire into the Freehold Title. Therefore, for purposes of procedure on sales, the title with a Good Leasehold Title confers the same advantages as registration with Absolute Title.

Possessory Title.—Registration with Possessory Title is effected on pure-fact evidence merely, and is useful in cases where there might be difficulty in obtaining Absolute Title. So far as regards security from fraud, since the fact of the title is proved by public and other incidental matters, it has the same effect as Absolute Title, but it does not immediately confer on the proprietor and those who claim under him the same title to the land as enjoyed by the rest of the world. Its effect is not retrospective; it keeps the title clear for the future, but it does not protect against adverse claims dating from a time prior to its first entry on the Register books.

Consequently, if the land has to be sold very soon after its registration with Possessory Title, the purchaser may be prepared to have almost the same investigation made into the prior title as would have been made if the land were unregistered. The time and the expense of the inquiry are much lightened, though probably not wholly avoided. Finally—after an interval variously estimated by different writers at from three to six months, when the time being no further need to consider in any way the title prior to registration, the owner has practically the equivalent of Absolute Title. Besides this, land registered with Possessory Title can be converted into Absolute (or Good Leasehold) on very easy terms, especially on a sale.

NOTES ON WATER-SOFTENING.*

By Dr. JOHN F. MEYER.

As far back as 1756 the natural zeolites are first described in the "Transactions" of the Academy of Sciences at Stockholm; but it was not until 1850 that Theodor Way, con-

sulting chemist to the Royal Agricultural Society in London, established the fact that the zeolites placed in contact with salt solutions were capable of absorbing the bases formerly united to the calcium and magnesium, yielding up into solution the bases which they themselves contained.

Let me here repeat one of Way's experiments:—In this small glass filter you see a layer of natural zeolites; for convenience I took fuller's earth. I will pass through it a water of 10deg. hardness, and, as you will see from the test I now make, the hardness of the filtered water has been reduced. The following reaction took place. The bases on sodium in the hard water calcium and magnesium, have been absorbed by the zeolites, and the latter have given up their own bases (sodium) to the water. This experiment explains to a certain degree why a soft water of perhaps 1deg. is very often found at a depth of, say, 500ft., while at a depth of 100ft. the hardness of the water out of the same borehole is 50deg. The explanation is that rain water, passing through a strata of limestone, and thus becoming hard, afterwards passes through a layer of these natural zeolites, whose softening action you saw just now. Dr. Gans, Professor at the Mining Academy of Berlin, and president of the Laboratory of Geominy at the Berlin University, made a thoroughly scientific research of the natural zeolites, classified them, and published the constitution formulae. I shall not bother you here with all the chemical formulae; but anybody who cares to have them, I refer to the March number of the "Journal" of the Society of Dyers and Colourists. Ultimately Professor Gans succeeded in producing zeolites artificially, and took out a patent for the manufacture of artificial zeolites on a commercial scale in the year 1906. He named his artificial zeolites "Permutit" from the Latin "permutare," to exchange. The great outstanding property of Permutit, against the natural zeolites, is its greater power of exchanging its own base against other bases. This process of exchange follows closely the stoichiometric law of chemistry, and can be expressed as follows:—Permutit, an sodium-permutit, into calcium-permutit, magnesium-permutit, ammonium-permutit, potassium-permutit, etc., by passing through it solutions of calcium, magnesium, ammonia, potassium. The proof that only an exchange of bases takes place is shown by the fact that if you pass through a layer of calcium-permutit a solution of sodium-permutit, the solution which contains the base sodium, you convert the calcium and magnesium permutit back into sodium-permutit.

The following experiments will illustrate my previous remarks: I have here in this glass tube a layer of sodium-permutit, which is a grey, porous silicate, and will pass a hard water of 20deg. through the permutit. (The hardness consists of 10deg. bicarbonate of calcium and 10deg. sulphate of calcium.) You see the exchange takes place, and the sodium-permutit has absorbed the calcium from the hard water and yielded its own sodium basis to the water. The filtered water is 0deg. To illustrate this further, I will pass a water of 20deg. through the same filter; the hardness in this case is due to magnesium sulphate. You see, again, the filtered water is 0deg., showing that the exchange of the base magnesium took place as readily as when calcium was removed. The next filter contains a layer of calcium-permutit. Now, if I pass a solution of common salt (the basis of which is sodium) through the filter, the base calcium from the calcium-permutit enters the common salt solution, and the sodium enters the permutit. As you will see, the sodium leaves the filter, contains the calcium which has been turned out of the permutit, as I will show you by adding ammonium-oxalate, which, in the presence of calcium, will form a white precipitate. Gentlemen, these experiments disclose the whole Permutit process for water softening down to 0deg., and the procedure of regeneration.

Let me repeat in words what we saw, and so describe this new process: If a water of a given hardness is passed through a bed of

sodium-permutit, the sodium in the permutit is replaced by the calcium and magnesium taken from the water, giving a calcium-magnesium-permutit, while the acid radicals formerly united to the calcium and magnesium in the water unite with the sodium which is turned out of the permutit. There will obviously come a time when all the sodium in the sodium-permutit has been replaced by calcium and magnesium from the treated water. When this period is reached it is not necessary to renew the permutit, but to let the exhausted permutit regenerate or revivify it. This is done by the action of a solution of common salt on the exhausted permutit. The laws of chemical exchange again come into play, the interchange being in this case in the opposite direction, sodium from salt driving out the calcium and magnesium from the exhausted permutit and converting it back to sodium-permutit. It is obvious that all the manufacturer of sodium-permutit plants has to do is to calculate how much sodium-permutit is necessary to take out the hardness of the water per hour and per day, and then to place the permutit into a cylinder. The two drawings here show different types of a permutit water softening plant, gravity and pressure. Many methods have been, and still are, employed to soften a water—one precipitates the lime and the magnesia in the water by addition of lime and soda, the other by addition of lime and baryta, the third by addition of caustic soda. But all these processes suffer from the disadvantage that in the softening of cold water the precipitation of the lime and magnesia does not take place instantaneously, but only after a comparatively long time. It is also impossible to obtain a complete softening down to zero degrees by any one of the said processes. Gentlemen, if you take into account the fact that most of the water supplies in England are of a variable nature, the constituents changing daily in composition, you will agree with me that by the aid of a fully trained water chemist only is it possible to use any of the above mentioned processes for softening water down to 0deg. without making it more injurious than the crude water, on the one hand, through an excess of the reagents used, and, on the other hand, by an insufficient quantity of chemicals, resulting in a partially treated and invariably turbid and cloudy water. I have nothing to say against the above-mentioned three processes when they are worked by a trained water chemist, who makes the analysis of the water every hour and adjusts the amount of reagents according to his analysis, testing at the same time the composition of his reagents and controlling the softened water. If this trained water chemist is to succeed in softening the water down to 4-5 deg., and keep its alkalinity down, then his time is fully occupied the whole day long. What I absolutely condemn is the practice of many of those who sell a so-called automatically working lime and soda water softening plant to suffering manufacturers. This plant is built of invariable standard sizes for all waters, irrespective of their composition, although an analysis is generally made in the laboratory of the seller of the plants. The manufacturer is told to add so much lime and so much soda to the water, the settling time being generally calculated as sufficient with one hour, which is totally inadequate. When he has put for his plant the manufacturer is very often left alone with it, and finds perhaps after six months that the scale in his boilers is not quite as thick as before, but hard like enamel. The consumers are choked up with a very fine powder, in the washing machines he finds a layer of a fine powder, the pipes are filled with this fine powder, and for his plant he is asked to when using hard water, the wool washed with the softened water has become harsh, etc. The manufacturer summons the seller of the water softening plant to put these defects right, and owing to this being impossible, comes to the conclusion that water softening is a thing not sufficiently advanced to be put into practice. The water chemist finds this automatically working apparatus cannot produce automatically a soft water, because

* Presented at a South-East District Meeting of the Institution of Municipal Engineers on Wednesday, May 22, 1912, at No. 5, Southampton-row, W.C.

the soda water changes every day, making it necessary to add different quantities of reagents, because the reagents have changed their composition, all of which he learns by experience in the means you have before you. The new machinery from the same seller of the water-softening plant to put the first plant right, in order to do the impossible. This goes on as long as the patience of the manufacturer lasts. In many cases the automatically worked water-softening plant ends in the works as a storage tank. Gentlemen, the chemical man says that the composition of the permuted water is such that these dangerous troubles which I have mentioned just now cannot possibly occur. It is chemically impossible, because there is no lime and magnesia left in the permuted water, and this is the reason why the Permut process for water softening has no competition in the world. Please understand, however much the water may vary in hardness, it is always reduced to 0.062, and therefore no incrustation can take place in any number of tubes or boilers, as always occurs in waters partly softened by other processes. The permuted water effects the largest possible saving in those industries or places where soap is used, and it is, along with distilled water, the only water which prevents the formation of sticky, insoluble lime, and magnesia soaps and the objectionable lime lakes in dyeing and finishing. Permuted water is further an excellent water for drinking purposes, confirmed by the most eminent medical doctors of today. Let me please explain why I have attracted, and will always attract, a man who is a water-softening plant of the lime and soda system without giving the buyer the chemical explanation why this plant cannot fulfil the claims made for it except under certain strict conditions, and why it happens that sometimes it cannot fulfil them at all. There is no other country in the world with such an enormous and flourishing water-softening industry. The consequence of which is that the availability of water becomes worse and worse, compelling the manufacturer to treat it artificially to make it suitable for his purposes. He knows full well that the question of water is a most serious one upon which his entire business depends, and should be made aware of the nature of the difficulties and troubles liable to arise with any system of softening under all conditions and at all times. If some of you had been with me during the last nine months through factories and mills in this country, you would have received ample proof of my statement that I did not in one single case come across a lime-soda plant which was working satisfactorily, or giving for the manufacturer the desired results. It is not nearly the fault of the seller of lime-soda plants, but he should acquaint the purchaser with to expect. He is not the only sufferer. Water-softening gets an undeserved bad name and I am sure there would be half the failures there are with lime-soda plants were all plants laid clear from the beginning as to what the actual, not theoretical, results would be.

A further phase of the Permut process is the manganese permuted, manufactured by precipitating hypochlorite of manganese on a permuted by permanganate of potassium. If I pass a water which contains iron or manganese through this filter, all the iron and manganese salts will be oxidised and kept back in the mud, and the regeneration of the filter takes place by using a solution of permanganate of potassium. These manganese permuted filters work excellently in those cases where every trace of iron and manganese has to be taken out of the water, and further to eliminate organic matter.

Another application of the manganese permuted filters is in the treatment of plants which contain harmful germs. Since the plants can be worked at a high rate of filtration, the initial and working costs are very small, the working costs being about 2d. per 1,000 gallons of water treated. It would be beyond the scope of this paper to deal with all the claims that permuted can be put to. Among many uses are the manufacturing of salts of a certain base by double decomposition. The elimination of dangerous alkaline salts from the diffusion juice in the sugar industry.

The obtaining of gold from very dilute solutions; and in different combinations permuted practically possesses an unlimited field.

ARCHITECTURAL ACOUSTICS.

Probably no subject connected with the practice of his profession has caused the architect of auditoriums—or, in fact, any type of buildings in which large numbers of people assemble for purposes of instruction, entertainment, or worship—greater anxiety than has that of acoustics. This is due, first, to its very great importance, and, second, to the fact that until recent years the matter seemed to be practically beyond control of the designer, who frankly admitted his lack of knowledge concerning the phenomena of reverberation and interfering sound. Due almost wholly to the experimental investigation and research of Professor Wallace C. Sabine, of Harvard University, this situation has been entirely changed within a decade, and it is now possible and feasible to determine with complete accuracy the acoustical properties of a given auditorium in advance of its construction. Moreover, it is ordinarily possible to apply remedial measures to existing halls that will greatly improve imperfect acoustical qualities without materially altering either the form or architectural treatment of the room. Doubtless instances exist in which this latter statement would not be strictly true; where, in fact, very material modifications of form or architectural treatment might be necessary to accomplish the desired results; but they may be considered exceptional instances.

The result of Professor Sabine's original work, undertaken with a view to correcting the lecture-room of the Fogg Art Museum, was published in a series of articles in *The American Architect* in 1900. The next five years were devoted by him to the extension of this study over the range of the musical scale, and results were published in the "Proceedings" of the American Academy of Arts and Sciences for 1906. Since that time investigation has been carried forward with reference to interference and resonance, the effects of peculiarities of form and the causes of variations in audibility with results that appear to be of first importance.

An article contributed by Professor Sabine to the "Architectural Quarterly of Harvard University" for March is devoted to the correction of acoustical difficulties. Concerning its scope, the author states:—"It is the purpose to discuss here medicinal rather than surgical methods. Such treatment properly applied, and executed, while not always available in the great majority of cases, is a result in an entire remedy of the difficulty."

A half dozen specific examples where correction has been made are shown and described in a manner that carries conviction. Perhaps the only case cited in which the facts differ somewhat from popular impression is the building known as the New Theatre, in New York. This building has been the object of so much ignorant criticism on the part of the *Architectural Press*, and the architects the recipients of so much unmerited censure, that it seems a simple act of justice to quote from Professor Sabine's authoritative statements concerning this enterprise in some detail. They should serve to correct erroneous impressions and place the matter properly before the profession. The statement reads:—

Had it been a commercial proposition, its acoustical qualities would have been the first passing note. As an institution of large purpose, on the part of the founders, it received a correspondingly large amount of attention, and the generous purpose, without here or desire for financial return, it was appreciated by the public, and received the largest subscription which seems the usual reward for such undertakings. The writer was consulted only after the completion of the building, but its acoustical difficulties can be discussed adequately only in the light of its initial programme.

It was part of the original programme submitted to Messrs. Carrere and Hastings, that the building should be used, or at least should be capable of use for opera as well as for drama. This idea, with its corollary features, influenced the early design and the final construction of the structure. It was also a part of the initial plan that there should be two rows of boxes, something very unusual in the theatre construction of that time. The use of space, and magnified the building in all its dimensions. Later, but not until after the building was nearly completed, the upper row of boxes was

abandoned, and the gallery thus created was changed to foyer chairs. As the main walls were by this time erected, the gallery was limited in depth to the boxes and their ancillary spaces, and the result of this level, which is ordinarily occupied by the boxes, the New Theatre is the only theatre of great value, is of small capacity. Notwithstanding this, the New Theatre is the only theatre in which the theatre seats but little more than two thirds of that number.

The necessity of providing twenty-three, round, modious boxes, all in the first tier, of which only one should be so near the stage as to be distinctly uncomfortable, and all large circles for their front rows, and the necessity of having the boxes not merely as the seats, which are ordinarily the best seats in the theatre, but the great horizontal scale this necessitated a great deal of vertical scale, correspondingly great vertical scale. The row of boxes, the foyer balcony above not merely determined the scale of the auditorium, but also presented at the back of their shallow depth a concave wall which focussed the reflected sound in the centre of the auditorium.

Finally, it should be borne in mind that while the acoustical demands in a theatre are greater than in almost any other type of building, the acoustical, the great modulation of the voice in dramatic action, the New Theatre was undertaking an even more than usually difficult task, in that it was attempting to handle one hand the older dramas with their less familiar and more difficult phrasing, and on the other the modern able and delicate modern plays. The conventional type of theatre construction, though only fairly well adapted to the usual type of dramatic performance, the New Theatre, with its very difficult type of performance, was forced by the conditions which surrounded the project, to deal with the conventional type far more radically than was the case at that time.

Here, as usual in a completed building, structural changes and large changes in the acoustical conditions and the acoustical difficulties of the auditorium could be remedied only by induction. The boxes were changed from the first tier, the concave, high, interlaced with the foyer chairs, while the excessive height of the main body of the auditorium was reduced by the removal of the boxes, and the central chandelier. This ingenious and not displaying substitute for the recommended lowering of the ceiling, and the removal of the boxes, although, of course, only as a means to an end, it was, nevertheless, a lowering of the height of the ceiling is 20 ft. The improvement brought about by this was pronounced and satisfactory to the founders. The distances, however, were still too great, even visually, for the type of dramatic performance for which the theatre was primarily intended, and the solution was therefore discontinued. The New Theatre is much better adapted to opera than to dramatic performances, and it is a charming solution of many difficult architectural problems, it is not restored to such dignified purposes.

The entire paper can be read with great profit as one treating of a subject whose importance is scarcely less than that of importance. Further discussions devoted to various phases of the general subject of architectural acoustics, particularly as affecting the design of buildings in order to avoid the necessity of applying correctional methods after erection, are promised in the not distant future.—*The American Architect.*

THE MECHANICS OF BUILDING CONSTRUCTION.

A good book on the principles of structural engineering, covering the whole ground the student must traverse before he begins to specialise, is not to be found among the many kindred manuals of its class. The need, however, has been fully met in this excellent and comprehensive volume, which is the first of a series of lectures delivered by the author at South Kensington in 1906 and 1907 at the request of the Board of Education. And certainly not the student alone will value the book. The architect and engineer in actual practice, whose theory of construction may have grown rusty in the busy years of life, will find it most useful as a work of ready reference, and it should be prominently added to every design library.

Its range is wide and comprehensive; the illustrations and examples are clear, and their exposition lucid. Few of our instructors of to-day combine the knowledge of theory and actual practical experience absolutely necessary for the production of a really reliable book of the kind, and in a high degree, the book is a permanent work that will take a high place among the permanent literature of its class.

Lord Forester laid on Friday the foundation stone of a new hospital for Wellington Square to be called the John Crump Bowring Cottage Hospital.

The Mechanics of Building Construction. By HENRY ADAMS, M.I.C.E. London: Longmans, Green and Co., 6s.

CURRENTE CALAMO.

The result of the Australian Home Secretary's practical boycott of British and Australian architects is that the first prize offered for the best design for the new Australian Federal capital has gone to an American, the second to a Finn, and the third to a Frenchman. Labour, which practically rules the roost in Australia, has thus identified itself with the policy of encouraging foreign "blacklegs," who, bound by no ties of loyalty to British and Australian representative unions, were, of course, able to respond to the invitation to compete; which, shackled as it was by unfair conditions, has been most properly ignored by architects at home and in the Commonwealth.

Not without shame have we to confess that, at the moment, we cannot say that the Australian Home Secretary is not entitled to fling at us the old taunt, "What about Ireland?" There, as we have pointed out elsewhere to-day, the Government is pursuing exactly the same policy, in defiance of the remonstrances of the Royal Institute of Irish Architects. How is it that here and at the Antipodes officialism is so blind to the interests of the taxpayer, who is, above all things, entitled to best value for the money he contributes? Where is this insolent disregard of the demand of skilled labour for fair conditions to stop? Is the next outrage on common-sense to be Mr. Lloyd George's gracious permission to all and sundry to patronise the quack of every sort at the taxpayer's expense if the doctors refuse to be sweated?

The other day we printed a letter from Mr. H. A. Hall, Hon. Secretary of the Architectural Association, stating that his Council are intending to augment their almost unique collection of Mediæval Detail which they inherited at Tufton-street, by developing and adding to their treasures, in order that students may possess within their doors a much more comprehensive assembly of casts illustrating the architectural evolution of this country, and of others also. It might assist in that direction if we remind those who may chance to know, and to inform those who are unaware of the fact, that in the School of Art at Cork there is housed quite a remarkable series of Classic antiquities which might be well worth repeating for Westminster. About a hundred years ago, through an accident, these casts got landed in Ireland when on their way to London. The vessel on board of which they were shipped, as a present of Grecian sculpture in the Vatican from the Pope to King George III., was wrecked off Cork Harbour; but so little did his Majesty care for artistic things, that he shirked the incidental expenses of their salvage, and accordingly intimated to the shippers his willingness, under the circumstances, to forego all monetary obligations by permitting the authorities of Cork to pay the freight and other incidental charges and keep the goods. Farmer George of course had other interests, and evinced little care for art, as was common with most of his contemporaries. Thus it came about that the City of Cork was, and is still, possessed of these fine specimens of the Greek. For years, however, they were neglected and left to dust and dirt, so that in time they became as black as a hat till, as Mr. Thaddeus tells us, "somebody suggested that they should be washed and whitened, when their beauties

became more evident, and we are told that Maclise, Mulready, Barry, and Foley, among other students, grounded their knowledge of Classic refinement upon the study of these same antiquities from the Roman Pontiff's Palace.

Would it not be opportune and also a wise thing to endeavour to obtain copies of the Architectural Museum at Westminster, and in this way to carry out, to some extent at any rate, the project mentioned by Mr. H. A. Hall? The relation of Greek sculpture to architecture was always intimate and incidental to it. Certainly, we have not seen the specimens in question—they may be too sculpturesque; but we may safely presume that their detail is not undercut like much of the Gothic carving, so that probably the possible damage to the originals in this case is not likely to count. Certainly the cost would not be excessive, provided the trustees, whoever they may be, in charge of these casts will give permission for the replicas to be made, and, in fact, it might be worth while to ascertain whether the Committee of the Cork School of Art would be willing to exchange copies of them for a representative set of Mediæval ones. This might be managed without risk provided suitable subjects were selected adapted to reproduction.

For many years the Council of the Royal Architectural Museum supplied copies of this sort to art schools at home and abroad, but made a rule not to allow new casts to be produced from delicate or very undercut ornaments, because the chance of damage would be too great, and only one firm was allowed to carry out the work. The proceeds of these sales went towards the current expenses of the Museum. With a little enterprise on the part of the Council of the Architectural Association, much might be done, subject to the same necessary precaution, towards the augmentation of their valuable museum, and with that object in mind these notes may be taken as directing attention to one way of realising the intentions referred to by our correspondent.

The Departmental Committee appointed by the Lords of the Treasury to inquire into the system of providing Post Office buildings, with particular reference to the alternative policies of renting a building, whether by H.M. Office of Works or the Post Office, is a strong one, composed as it is of men of judgment and experience. Sir F. Cawley, Bart., M.P., is nominated as the chairman, and the four other members are Mr. W. E. Horne, M.P. for Guildford, the President of the Surveyors' Institution; Mr. John Slater, B.A., F.R.I.B.A., a Past-President of the Architectural Association, surveyor to the Berners estate in Marylebone and a member of the Tribunal of Appeal under the London Building Acts; Mr. C. J. Howell Thomas, F.S.I., a principal valuer in the Inland Revenue Department; and Mr. Henry Herbert Hambling, general manager of the London and South-Western Bank. The Secretary of the Committee is Mr. L. C. Bromley, of the Treasury.

It goes without saying that in the face of another labour crisis the "British Socialist Party" did nothing but play at "Bear Gardens" at Manchester on Monday; while the I.L.P. at Merthyr principally devoted its energies to abusing the Labour Party in

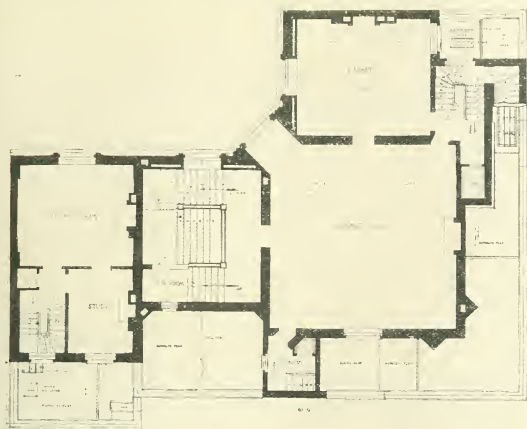
Parliament. To the Co-operative Congress one turned with more hope, but vainly. The Co-operative movement can report an increase of 100,000 members, of share capital by 1½ millions, of sales by 4½ millions, and of profits by nearly a million. That is all to the good, as far as it goes, and does credit to its controllers—almost entirely working men. But it is all buying and selling. Mr. Openshaw, the president, had to confess, like all his predecessors before him, that progress in productive enterprise had been disappointing, and that "they should not only produce for themselves all the things they needed, but also employ their members in the process!"

Why don't they, and solve the labour problem once and for all? Because in many cases the Co-operator is as keen after the dividend as his bigger brother the great capitalist. Keener, because he grudges the price of really skilled direction. Because, too, on the other hand, many things produced cannot be produced cheaply and well by honest Co-operation. Yet with Co-operation alone rests ultimately the solution of all industrial problems. All the talk about opposed "classes" and "masses" is nonsense. All the "luxury" of the rich is such a pitiful trifle compared with the perfectly possible output of well-directed labour to-day, were it not for cut-throat competition, and the unemployment which for a time follows every increase of productive power, that it is like a drop in the bucket. Co-operation might have any amount of capital it asked for to-morrow if it gave a fifth part of as valid an assurance of real ability to use it for production as is vouchsafed by the last lying prospectus of cent. per cent. dividends for the gudgeons who swallow the ground-bait of the company promoter. So far, in no great industry has Co-operation moved one real step. Where is the Moses to lead the people out of the Egyptian slavery of modern Labour strife into the economic Canaan of really organised production?

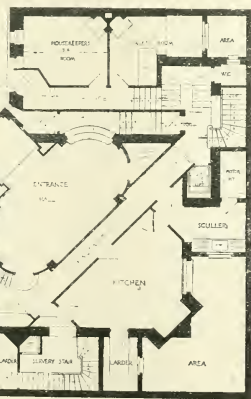
Holman Hunt's "Lux Mundi," for which the late Lord Tweedmouth paid a thousand guineas, has gone cheaply to Manchester for £350, after having been declined at that figure, so it is said, by the City of Liverpool. There are three paintings of this picture by Holman Hunt. One hangs in Kettle College, another in St. Paul's Cathedral, and the third was acquired by the late Lord Tweedmouth. The present Lord Tweedmouth seems to have been genuinely inspired by the desire to benefit the picture-lovers of Liverpool, with which city he has local associations; but Liverpool seems contented to let Manchester have the painting. A few flaming paragraphs of the sort we have become familiar with lately of the inevitable sale to an American millionaire, etc., etc., etc., would doubtless have sent the price up to ten times the modest sum asked!

Another "antiquy" has been added to that *omnium gatherum* of the relics of the Metropolis—the London Museum, a hanseatic cab. Jehu is not quite off the streets yet, so the enterprising curator can be congratulated on having taken time by the forelock! Perhaps, in the twenty-first century poetic young couples who may still then read Mr. Le Gallienne, though no longer

Like dragon-flies the hansoms hover
With jewelled eyes to catch the lover,
may be allowed to take the precious relic out



FIRST FLOOR PLAN



GROUND FLOOR PLAN

HOUSE IN SMITH SQUARE.

of the London County Council left vacant. In spite of the extremely narrow frontage of the site in proportion to its area, the architects have been able to plan large rooms—sunny, well lit, and ventilated. The octagonal treatment of the large reception-room on the ground floor, and of the dining-room on the mezzanine ground floor, allowed these rooms, which are 30ft. square, to have a large window towards Smith-square, the advantage of which is increased by the depth of the large arch surrounding it, and forming an ample loggia widely open to the south sun. The number of large rooms provided on this somewhat contracted area is due mostly to their being superposed. The staircase, however, has been so planned that the access to the dining-room above the entrance-hall is hardly felt, as only a few divided steps lead to it, while one would think that the reception-rooms are on the first floor instead

of on the second, where they really are. The treatment of the elevation, which was rendered particularly delicate by the intricacy of the plan, has, moreover, to be simple in design, but the grouping of the large openings required in so small a frontage gives a dignified and restrained feeling. Dutch bricks are used for facings, and a very small amount of Portland stone for the window dressings and cornices. The internal decorations are carried out in harmony with the outside of the building—that is to say, they are plain but effective. The whole of the work was done by Messrs. Wm. Cubitt and Co., of Gray's Inn-road. The drawing is on view at the Royal Academy.

HOUSE AT HARPENDEN.

This is a small house with external walls in stone brickwork with cavity, and externally plastered. Dressings and quoins are in red

bricks, and the roof covering is of hand-made tiles. Mr. J. E. Dixon Spence is the architect, and his drawing herewith represents hangs this year in the Royal Academy.

The Durham Memorial Museum has been erected near the Park Entrance, Middlesbrough, and presented to the town by Mr. A. J. Druman. The architect was Mr. J. Michael Batemley, of Middlesbrough.

The Board of Agriculture has offered £200 a year towards the salary of an expert adviser in forestry for the Forestry Department at a small bridge, for which new buildings are to be erected at a cost of £6,550.

The Great Western Land Company Limited, have just placed a contract amounting to £13,000 for making the roads and sewers throughout their Elchome estate, near Hanwell, bringing the total expenditure under this heading to more than £17,500.

At Widnes Town Hall, the other day, Mr. R. G. Hetherington, A.M.I.S.T.C.E., held a Local Government Board inquiry into the corporation's application for sanction to borrow £3,000 in respect of the conversion of privies into water-closets. The health committee has taken this matter in hand, and when it is considered necessary property-owners are assisted with part payment if they desire to convert existing open privies into the better sanitary conditions.

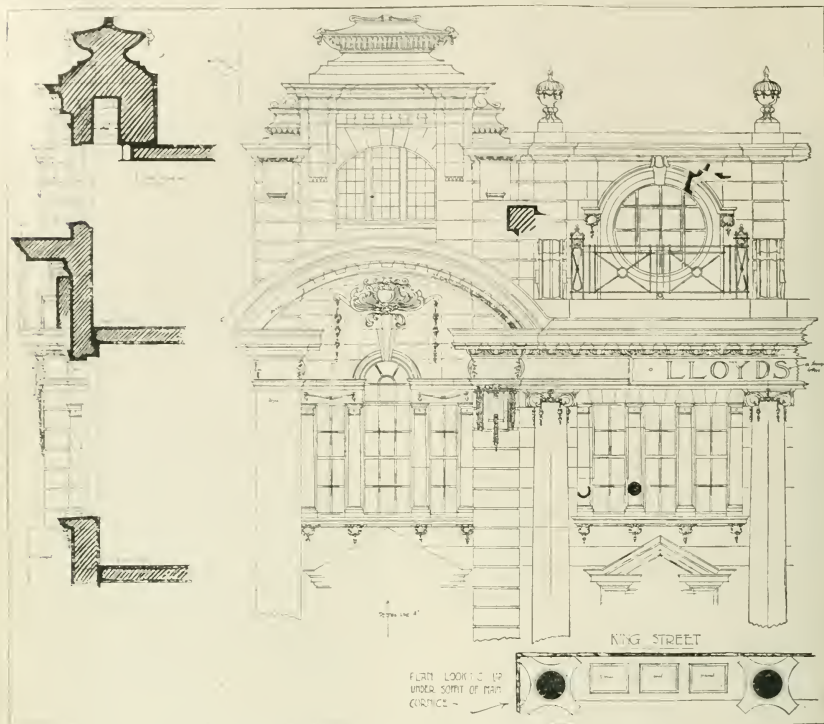
The tender of the Widnes Foundry, Ltd., has been adopted for the supply and erection over the River Quarrah, of a railway bridge, composed of nineteen trussed girders through steel spans of 110ft. 6in. each, and eighteen pairs of steel cylinders with concrete filling. The total weight of the bridge complete is about 2,500 tons. This bridge is the first connecting Brazil and Uruguay, the River Quarrah forming the boundary between the two countries.

The Marquis of Bristol states that the scheme for setting up a national memorial to Thomas Gainsborough, the illustrious painter, in his native town of Sudbury, Suffolk, is on the point of completion. The statue, the work of Mr. Bertram Mackennal, A.R.A., is in the present exhibition of the Royal Academy. It is to be cast in bronze, and will be placed in its chosen position in Sudbury within a year. The total cost will be about £2,200, towards which the committee raised about £1,850.

The masonry work in connection with the raising of the parapets of the Dean Bridge, Edinburgh, to a uniform height of 4ft. 9in. has been completed. There is still, however, to be added to the parapets a sumptuous iron crest, about 2in. in height. The tions have been carried out for the corporation from plans by the borough engineer, approved by Sir Rowand Anderson and Professor S. Brown, with a view of preventing persons from throwing themselves over the bridge, while the view is obstructed as little as possible. The contractor for the masonry is Mr. Colin Macandrew, of Edinburgh. The Dean Bridge, designed by Telford, was erected in 1853. Since then it has been the scene of about 180 suicides.

Construction work upon the Kalgoorlie-Port Augusta Railway, Western Australia, will be begun shortly. Tenders will be invited shortly for the supply of fishbolts and spikes, points and crossings, and other accessories. The iron goods will be imported, probably to the extent of £1,000,000 worth. For the bridges and culverts rolled-iron joists will be used from 10ft. to 14ft. in span. The Federal railway engineer (Mr. H. Deane) expects that internal-construction locomotives will be adopted, thus effecting a saving of £200,000 on waterworks. Track-laying machines will be used, which will enable at least a mile of railway to be laid each day. The laying of the line will be begun from both ends about December next, and it is hoped to complete the work in three or four years.

Mr. Gustav Sachs, of Marlborough-hill, St. John's Wood, and of the Stock Exchange, who died on April 19 at Athens, has left £72,227 gross and £70,388 net. He bequeathed about £500 to various German and anglo-Jewish hospitals and churches; £2,250, and his leasehold house and effects therein, to his wife. The residue of the property is to be held in trust to pay one-half of the income to his wife for life, and subject thereof one moiety of the whole is to be held in trust for his son, Edwin Otto Sachs, the well-known architect, and his issue, and the other moiety in trust to pay £2,000 to the Jews Free School, Bell-lane, or should his son so desire, £1,500 to the school and £500 for such hospitals in the United Kingdom as he may direct, the residue going to the son and his issue.



LLOYDS BANK, KING STREET, MANCHESTER: DETAIL OF FACADE.

Messrs. CHARLES HEATHCOTE and SONS, Architects.

LLOYDS BANK, KING STREET, MANCHESTER. DETAILS OF FACADE.

Last week we gave a perspective view and floor plans of Messrs. Lloyd's Bank buildings about to be erected in King-street, Manchester, from the designs of the architects, Messrs. Charles Heathcote and Sons. The accompanying pair of illustrations are reduced from the working drawings showing parts of King-street front. The gauge of the brickwork ranges four courses to 14in. The masonry is in Portland stone worked locally. The projected heads are leaded. The joints of the ashlar work are faced with jet black cement, bedded in. The plans of parts and sections attached to the elevations sufficiently explain the drawings. A description accompanied our illustrations already published, as mentioned above.

CHIPS.

The new FAMES Picture Rooms at the Birmingham Corporation Art Gallery will be formally opened on July 17.

The salary of Mr. W. S. Foale, engineer and accountant of the Portsmouth Corporation electric lighting system has been increased to £350 per annum.

The new parish hall erected in High-street, Bournemouth, at a cost of £1,000, has been formally opened. Mr. J. Lawson Smith of Bournemouth and Messrs. was the architect, and Messrs. Williams and Sons of New Tisbury were the contractors.

At Whitcombe Church, Dorset, fragments of a fine Saxon or Celtic churchyard cross have been found built into the chancel wall. Mr. St. John Hope, F.S.A., has pronounced the cross unique in Dorset.

At the last meeting of the Berkshire County Council the Highways Committee reported that the Road Board had offered to make an immediate grant of £35,000 and to lend the council a further sum of £24,500, free of interest, to enable them to proceed with the reconstruction of further sections of the Bath and London roads. The offer was accepted.

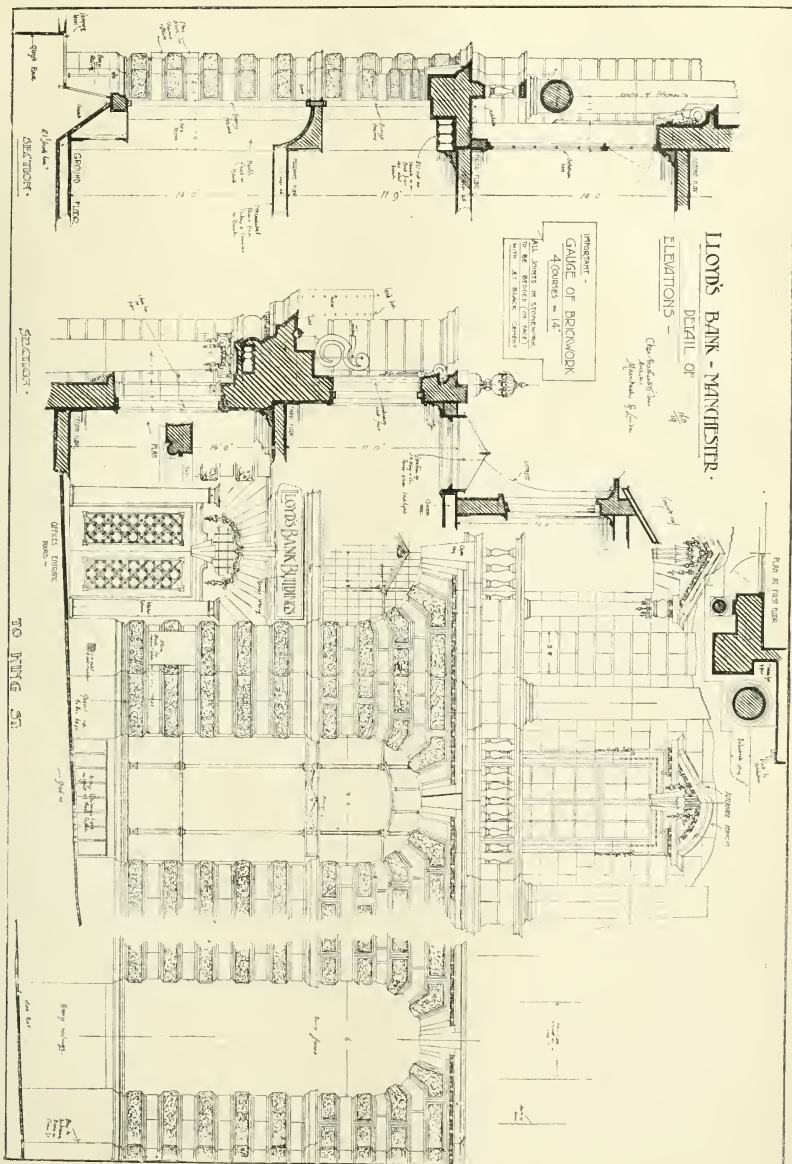
Sir John Benton, K.C.I.E., who has just vacated the post of Inspector-General of Irrigation in India, after a term of six years, leaves a record extending over thirty-eight years of distinguished service behind him. Sir John entered Cooper's Hill in 1871, going out to India in 1873, having qualified as an assistant engineer for the public service in two instead of the usual three years. He was posted to the Irrigation Branch of the Punjab, and has carried out an extensive system of canals in that province.

The new sewage disposal works for the rapidly growing borough of Mansfield, were formally opened last week. They are constructed on 28 acres of land between Bath-lane and Old Mill-lane. The scheme provides for screening and arresting the detritus, precipitating the solids in sedimentation tanks, and the purification of this effluent on continuous flow in percolating filter beds. The scheme was prepared by the late Mr. R. Frank Vallance, borough surveyor of Mansfield, and has been carried out by his successor in office, Mr. M. T. Cullinge.

Two pictures, which have been on loan to the National Gallery since June, 1911, have been presented by Mr. J. C. J. Drucker, and are permanently hung in Room XXIV: "Woudrichem," by Th. de Bock; "Montmartre," by Matthew Maris; and "Ducks," by M. Maris.

Owing to the lack of sufficient wharves and harbour accommodation at Syracuse, and to the increasing traffic as a result of the annexation of Tripoli and Cyrenaica, the Italian Government have under consideration a project and estimates for the carrying out of extensive harbour improvements, and the construction of a new railway-station, customhouse, and post office for sorting letters, etc., arriving from Tripoli. There are also projects for harbour improvements at the Port of Augusta, and during the year 1911 a large area of land near the wharf was levelled for the purpose of being utilised as a depot for coal.

Mr. F. O. Stanford, one of the Local Government Board Inspectors, held an inquiry at the Borough Green Schools, Wrotham, Kent, on Friday relative to an application by the Wrotham Urban District Council for permission to borrow £10,000 for works of sewerage and sewage disposal. Mr. Elliott, the surveyor (who had been assisted in the preparation of the scheme by his brother, the surveyor to the Wigan Rural District Council) outlined his proposals for the drainage of Wrotham, Borough Green, Platt and Basted, with outfall works beyond Basted Mill. It was thus intended to provide for a population of 3,500, while the number now living in the area of 2,180 acres to be dealt with was 3,671. The effluent, after passing through various tanks and beds would run into the river Bourne.



Building Intelligence.

CAMBRIDGE.—The extension of the School of Agriculture Syndicate report that the Vice-Chancellor of the University has been informed by the Treasury that the Lords Commissioners have approved of a grant not exceeding £13,500 from the Development Fund for the building and equipment of an extension of the School of Agriculture, chiefly for the accommodation of research institutes in plant-breeding and animal nutrition. Of this sum it is proposed to expend about £3,000 on fittings and equipment, and about £11,500 on the actual building. Having obtained plans from Mr. Arnold Mitchell, F.R.I.B.A., of London, the architect of the School of Agriculture, the Syndicate recommend that as soon as the detailed plans and estimates have been approved by the Board of Agriculture and Fisheries the Vice-Chancellor be authorised to accept Mr. W. Sindall's tender of £10,987 for the extension of the school. The proposed extension follows the design of the present building, and is of the same width; its length is 87ft.

PARK PREWETT.—It was reported to the Hampshire County Council by the asylums committee at the quarterly meeting that the plans for the erection of Park Prewett Asylum received the approval of the Secretary of State on April 3, 1912. The county council, the Eournemouth County Borough Council, and Southampton County Borough Council have submitted applications to the Local Government Board for their sanction to the borrowing of their several shares of the proposed expenditure. Tenders were invited by advertisement for the construction of the foundations of the asylum buildings, and of the railway connecting the site with the system of the London and South Western Railway Company. Fifteen tenders were received for the foundation works and railway, two tenders for the foundation works alone, and one tender for the railway alone. One tender was rejected on the ground of its not complying with the conditions. The asylum committee decided to accept the lowest of the remaining tenders—that of Messrs. Musselwhite and Sampson of Basingstoke, subject to their giving satisfactory security. The amounts of the tender are £32,050 for the foundation works, and £4,348 for the railway, making £36,398 in all. The report was adopted and the tender accepted as recommended.

EAST HAM.—The new covered swimming-bath which has been erected on a site next the town hall has been formally opened by the mayor. The bath was designed by the late borough engineer, Mr. H. Campbell, now city engineer of Edinburgh, and has been erected by direct labour of the council's employees under the supervision of Mr. J. E. W. Birch, the present borough engineer. The cost has been about £9,000. The apparatus for heating the bath has been installed by Messrs. Boyles, Limited, of Irlam, Manchester, and is on the aeration and filtration principle. The steam for heating the pump is used to heat the water before it re-enters the bath. The steam for driving the pump is obtained from the council's electric station, which is adjacent to the baths. There are three shower-baths, two foot-baths, and a series of seventy-six dressing-boxes. There is seating accommodation for about three hundred persons, furnished with chairs, fitted up with marble terrazzo. Plans have been prepared for an extension comprising slipper and vapour-baths, and an application has been made to the Local Government Board for sanction to borrow £3,625 to carry out this additional work.

STROUD.—The Duchess of Beaufort opened on Thursday in last week a new school for girls at Stroud. The school is situated in grounds of over three acres at Downfield. The building is in the Georgian style, and is finished with red-faced brickwork, with Minchinhampton stone dressings, oak cornice and Rosemary tiled roof, surmounted by a dome. Internally the walls have green-glazed tile dadoes, and the whole

of the staircases and the ground and first floors are of fireproof construction. The building is provided with a central heating system, and with special arrangements for airing drying clothes. It has been designed with a view to future extension, and the work has been carried out from the designs and under the supervision of Mr. R. L. Phillips, architect to the Gloucestershire County Council, the builder being Mr. A. S. Cooke, of Pakenhill, Stroud.

WINCHESTER CATHEDRAL.—During the past week donations have been received for the Winchester Cathedral Preservation Fund, which have entirely wiped out the deficit. In all, £113,000 has been raised and spent on the edifice, which is to be reopened in the presence of the King on Monday, July 15, but Canon Braithwaite points out that many other parts of the fabric, including some portions of the roof, are crying out for attention. The whole of the ten new buttresses on the south side of the nave have been finished, and the great shoring has been erected on the east side of the transept, which supported the south wall of the south transept. The difficult work was accomplished without a single mishap, despite the fact that the wall is considerably out of plumb. Extensive supports to this wall have been provided by massive buttresses beneath the library.

PROFESSIONAL AND TRADE SOCIETIES.

THE ROYAL ARCHEOLOGICAL INSTITUTE.—The Institute will hold its summer meeting at Northampton, from Tuesday, July 23, to the following Wednesday, July 31st, at that month with headquarters at the Grand Hotel. The programme is as follows:—Tuesday, July 23.—Reception by the mayor and corporation; the churches of St. Sepulchre, St. Peter, and St. Giles; Eleanor Cross at Hardingstone. Wednesday, July 24.—Rail to Kettering; motor to Montagu's Hospital, Kettering; motor to Boughton House, Kettering; Kettering Church and Cross; motor to Kettering; motor to Rushon Church, Hall, and Lodge; motor to Rothwell Church, Market-house, and Jesus Hospital; motor to Kettering; rail to Northampton. Thursday, July 25.—Members will proceed by train to Rockingham; motor to Liddington Church and Bede House; motor to Rockingham Castle; motor to Kirby; Kirby Hall; motor to Grafton; rail to Northampton. Friday, July 26.—Motor to Brixworth Church; motor to Holdenby House and Church; motor to Northampton; motor to Earl's Barton Church; motor to Castle Ashby; motor to Coghoe Church; motor to Northampton. Saturday, July 27.—Rail to Irthlingborough; motor to Stanwick Church; motor to Raunds Church; motor to Higham Ferrers Church, Bede House and College; motor to Rusden Church; rail to Northampton. Monday, July 29.—Rail to Thrapston; motor to Lowick Church; motor to Drayton House; motor to Thrapston; motor to Woodford Church; motor to Irthlingborough Church; rail Higham Ferrers to Northampton. Tuesday, July 30.—Rail to Elton; motor to Fotheringhay Church and Castle; motor to Tansor Church; motor to Oundle; motor to Warrington Church; motor to Polebrook Church; motor to Oundle; rail to Northampton; annual general meeting. Wednesday, July 31.—Rail to Moreton Pinkney; motor to Canons Ashby House and Church; motor to Fawsley Church House and Dovehouse; motor to Byfield Church; motor to Chipping Warden Church; motor to Byfield; rail to Northampton.

The death is announced of Mr. Frederick Bonser, who for the last 22 years had acted as manager and chief assistant to Messrs. Leonard and Clarke, quantity surveyors, 107, Bishopsgate, E.C.

The Canadian Railway Commission has ordered the immediate construction in situ of a new joint railway station for the Grand Trunk and Canadian Pacific Railways, which, with the entrances and approach, will cost £1,450,000 sterling.

COMPETITIONS.

TWO WELSH SANATORIA.—The Edward VII. Welsh National Memorial Association for the treatment of Tuberculosis in Wales and Monmouth has begun the work of providing institutions in North and South Wales for the treatment of the disease. The association is now inviting applications from architects for the erection of a sanatorium in South Wales with 250 beds and one in North Wales with 150 beds. Particulars may be obtained from the secretary, Welsh National Memorial Offices, Newtown, Montgomeryshire.

YAS-CABERRA.—The following premiums have been awarded for designs for the Australian Federal capital site at Yas-Caberra. The first, of the value of £1,750, was awarded to Mr. Walter Burley Griffin, Steinway Hall, Chicago; the second (£750) to M. Eliel Saarinen, Helsinki, Finland; the third (£500) to Alfred Agache, 11, rue Eugene Flachat, Paris. Over 130 designs were sent in. The awards were made on the recommendation of a majority of two out of three judges. The assessors, appointed by the Minister for Home Affairs, were Mr. John Kirkpatrick, architect; Mr. J. M. Cane, representing the Surveyors' Institute; and Mr. J. A. Smith, president of the Victorian Institute of Engineers. It will be recalled that, owing to the character of the conditions of competition, the Royal Institute of British Architects and all the architectural societies in Australia requested their members not to compete.

The memorial to Archbishop Crammer in Jesus College Chapel will be unveiled by the Visitor, the Bishop of Ely, on June 13, at 3.15 p.m.

Mr. R. Bruce Savage, assistant surveyor under the Teignmouth Urban District Council, has received an appointment in the surveyor and engineer's department of Devonport Town Council.

The Senate of Durham University propose, at their June Convention, to confer the honorary degree of D.C.L. upon Mr. W. H. St. John Hope, formerly secretary to the Society of Antiquaries.

Mr. William Sugars, chief assistant borough engineer at Warrington, has been appointed engineer and surveyor to the Horbury Urban District Council at a salary of £130 per year. There were eighty-seven applicants.

The town council of Dunfermline has received authority to proceed with its town-planning scheme. The area to be treated is 5,000 acres in extent, and includes all the Rosyth territory that has been specified in its application. The scheme is one of the largest which has ever been promulgated, and the first promoted in Scotland.

A meeting of the Sir Alfred Jones Memorial Committee has been held at the town hall, Liverpool, presided over by Lord Derby, when Mr. W. T. Odridge recommended to the corporation a site at the Pierhead. The memorial, which takes the form of an emblematic group with a medallion of Sir Alfred Jones and two allegorical groups, is being executed by Sir George Frampton, R.A.

The Secretary for Scotland (Mr. McKinnon Wood) will preside at the opening ceremony of the reconstructed National Gallery on Monday next, at noon. Since May last year the gallery has been largely remodelled by the office of Works, from designs by Mr. W. T. Odridge, F.R.I.B.A., principal architect of H.M. Board of Works for Scotland. The collection, which had been temporarily housed in the Royal Scottish Academy, has been taken back to the gallery, and its rearrangement has now been completed.

A Local Government Board inquiry has been held at Lichfield before Mr. R. G. Hetherington, an application from the Lichfield Rural District Council to borrow £120,139 for works of sewerage and sewage-disposal at St. Mary's. Mr. Robert Green, M.P. for Birmingham, the Minister in charge of the scheme, explained that it provided sewers in the built-up portions of the town, and involved the construction of a length of about 1,600 yards of sewer in a deep tunnel, septic tanks, percolating filters, and other works of purification for a population of 1,000 in the first instance; the works being so arranged as to be economically extended and enlarged.

LEGAL INTELLIGENCE

BUILDING LINES IN SOUTFIELD, S.W.—The Tribunal of Appeal under the London Building Acts were to have held a special sitting at the Surveyors' Institution on Friday last, to hear an application by the London County Council that the Tribunal should award a decree concerning the general lines of buildings in Wimbledon Park-road and Augustus-road, which were the subject of a recent appeal. It has, however, been decided to postpone the hearing of this application until June 5.

THEATRE CONSTRUCTION AND LEGAL SQUEAL—BUILDERS' SUBSTANTIAL SUC- CESS.—Mr. M. Muir-Mackenzie, High Court Official Referee, gave a considered judgment on May 23, in an action in which Messrs. Archibald D. Dawney and Sons, Ltd., engineers, of Battersea, claimed £230 19s. 10d. balance of an account due from the defendant, Mr. J. B. Muir-Mackenzie, for steel construction works executed at Wimbledon Theatre, of which Mr. Muir-Mackenzie was the plaintiff and credited the defendant with £1,000 odd paid in account to them in September, 1910. Mr. Muir-Mackenzie admitted the claim, but pleaded that the work which the plaintiffs contracted to do should have been completed by June 1, 1910, but that it was not finished till a later date, and that it was under the contract between the parties he was entitled to £25 a day as penalties for that period. Mr. Muir-Mackenzie, in an alternative claim, claimed for damages claimed that he had been prevented from producing in the autumn season, and that he had suffered loss owing to the delay. He had also contended that his Christmas pantomime of 1910 had been ruined by the plaintiffs. The plaintiffs, on the other hand, disclaimed all responsibility for any delay, if any, and said they had not been furnished with adequate setting-out plans, and that they had, in making designs, to comply with the instructions to interview on behalf of Mr. Muir-Mackenzie. The plaintiffs had proceeded with the work with all possible despatch.—Mr. Randolph and Mr. Herman Cohen (instructed by Messrs. Parkes, and Co.) appeared for the plaintiffs, and Mr. Drummond and Mr. Bodanck (instructed by Mr. Mowbray Sharp) represented the building owner, Mr. Bertie Crewe, an architect specialising in theatre work, was amongst the many witnesses called on behalf of the plaintiffs, whose contentions he upheld. He declared in the course of his evidence that it was usual to give steel-work engineers a full set of plans of all the tiers to begin with. They invariably included the structural details. These plans, he said, contained the most essential plans. Steel construction engineers could not set about their work properly without correct plans. Mr. Muir-Mackenzie, in the witness-box, when examined by Mr. Drummond, stated that the plaintiffs' representations had, from the outset, impressed upon him the importance of time. He alleged that the plaintiffs gave him no indications that there would be delay which could not be attributed to the architect, Mr. Bertie Crewe. Mr. Muir-Mackenzie said he would not call the architect "a creature." He thought, however, that an architect should act in conjunction with the building owner, and his architect had had to do that. Mr. Randolph was proceeding with a further question in that connection, when Mr. Muir-Mackenzie said that the architect was in a certain measure agent for the building owner. Under certain matters he had to act impartially between the building owner and the building engineer. Mr. Randolph asked Mr. Muir-Mackenzie if it were his suggestion that plaintiffs had deliberately acted in order to make more out of the contract. Mr. Muir-Mackenzie: I should not like to say that I consider they were doing that. They were economising.—Mr. Randolph: Trying to do the best they could?—Put it like that if you like but not for me. (Laughter.) Mr. Randolph: I was only trying to do the best they could in my interest. Throughout the plaintiffs were objecting to be saddled with the delay. You said, "You are delaying," and they said, "The delay is not ours, and you cannot complain. You impose penalties on us." Witness: In some of their letters they apologise for their delay. Subsequently, however, Mr. Muir-Mackenzie admitted that the plaintiffs repudiated responsibility. Mr. Cecil Aubrey Massey, an architect, called for some evidence he was chief assistant to Mr. Bertie Crewe, and when asked by the plaintiff's witness undertook sole responsibility in connection with the carrying out of plans for numerous theatres. In March, 1910, witness was engaged to help in the construction of the Wimbledon Theatre project. He thought that plaintiffs had been provided with adequate plans and data. Plaintiffs had, he said, not complained to him verbally of the absence of complete plans; but witness on the other hand, had had to complain to Messrs. Dawney of the slow

way details were coming in.—In answer to the Official Referee, the witness said that in letters he had written to the plaintiffs during the progress of the work he had not reminded them that they were incurring penalties of £25 a day. It had not occurred to him to do so. Mr. Muir-Mackenzie said that the contract was made so that if Messrs. Dawney knew that they were incurring penalties amounting to £175 a week, they might perhaps have not regarded the contract as an over-profitable one.—Mr. Robert Alexander Whyte, partner in the firm of Messrs. Frank Matcham and Co., architects, who have designed over 150 theatres, said he regarded the plans prepared by Mr. Massey as sufficient to enable Messrs. Dawney to prepare their details for their own scheme. The roof at the outlet was the only weak part, but he had seen pencilled additions.—Mr. Drummond: What is the best order of erecting this steel-work in a theatre?—From an architect's point of view, the proper way to put the steel-work up is to follow the building up. Put the ironwork in as you go up. Engineers prefer that they should fix their roof, then their gallery, and then their circle. It is easier for them.—Mr. Henry Smith, architect, who was called in evidence on behalf of the defendant's case, following the evidence and arguments during a protracted hearing, Mr. Muir-Mackenzie reserved judgment on May 13. He delivered it on May 23. After an extensive review of the evidence, he said on May 13, Mr. Muir-Mackenzie said he thought he would be doing his duty if he adopted what Mr. Bertie Crewe had said in the course of his evidence, to the effect that he considered there had been a delay, and that the iron and steel work should have been completed about three weeks earlier than it was completed. In the circumstances, he decided to award defendant for unliquidated damages on the counter-claim. He said he would be making an award of £230 19s. 10d., and judgment for the defendant on the counter-claim for £500. He thought the counter-claim was very much exaggerated, and to a great extent had failed, an account of the defendant's losses being only one-third of the costs of the counter-claim. Plaintiffs would have the whole of the costs of the action.

ARCHITECT'S FEES. (W. Dow v. T. Boyd). In the Scottish Outer House of Session, before Lord Dewar, on May 23, the case of the plaintiff, William Dow, architect and civil engineer, 242, High-street, Kircaldy, against Thomas Boyd, hotel-keeper, Stag's Head Hotel, South Queensferry, for £64 15s. in respect for fees for professional service and preparation of plans for a proposed reconstruction of the Stag's Head Hotel. The defendant denied the employment. Lord Dewar, without calling on counsel for the pursuer, gave decree for £64, and expenses. Mr. Muir-Mackenzie, counsel for the pursuer, in a most difficult case in an exceedingly able manner. Despite all that, his lordship said he had formed a clear impression that the pursuer was right in his case, which was that he did enter into a contract with the defender. His lordship believed what the pursuer said; but he regretted to say he could not place the same reliance upon what the defender said. He was satisfied that the defender had not succeeded in making out the pursuer undertook to do the work gratuitously. He had come to the conclusion that the pursuer must prevail; and as counsel for the pursuer had been very patient and wisely, and in order to save the expenses of a long inquiry, agreed if there was liability £64 was the correct sum, he would give decree for that sum, with expenses.

AFMARS OF HORSEAL DESTROYER COMPANY.—In the Chancery Division, on May 23, Mr. Justice Bank approved the appointment of a receiver and manager of the Horseal Destroyer Company (Limited), which manufactures machines for pest destruction at Pershore, Worcestershire. Mr. Justice Bank said, the balance sheet of the holders of a debenture for £10,000. The respondent company was not a losing concern. It made a profit of £4,500 last year, and had several contracts in hand; but, by reason of a heavy judgment which it was made against recently, it was in financial difficulties. There was no opposition, and his lordship appointed a receiver and manager as asked.

A CARDIFF ARBITRATION.—Mr. H. Price Boulton, M.Inst.C.E., has given his award in the case of "Whyte and Co., Ltd., v. Cardiff City Council," in which the dispute which arose between the parties after the completion of the western outfall sewer. Messrs. Whyte and Co., the contractors, claimed over £33,000 extra on their contract, and the arbitration occupied 12 days in hearing. The arbitrator in his

written judgment awards for delay the sum of £4,361 8s. 8d., for trial borings £2,774 7s. 6d., for tunnelling £2,742 10s. 2d., and for the miscellaneous items £47,334 17s. 7d., making a total of £58,212 18s. 11d., due to the contractors under the contract. The contractors have already been paid £58,050. The arbitration must therefore pay to the contractors the additional sum of £15,162 18s. 11s. The corporation are ordered to pay to the contractors one-third of the taxed costs incurred, which the corporation, and must bear their own costs. The cost of arbitration will be borne in equal shares by the contractors and the corporation.

BOYD AND FORREST V. GLASGOW AND SOUTH-WESTERN RAILWAY COMPANY.—The House of Lords gave judgment on the 19th inst. in an appeal by the Glasgow and South-Western Railway Company arising out of a claim against them by Messrs. Boyd and Forrest, contractors, of Kilmaronock, for £106,000. The contractors undertook the construction of the Dalry and North Johnston Railway, and the widening of the line between Dalry and Swinless Junction for £243,000, with extras. It was alleged by the contractors that they were misled as to the nature of the work, or otherwise, and that the work would pass by bords presented to them by the appellants' engineer. At the conclusion of the work the contractors claimed to set aside the contract, and be paid on a "quantum meruit" basis for the work, or otherwise, in respect of damages. The company paid during the course of the work the sum of £271,970, but the contractors claimed that in addition to this sum they were entitled to recover additional remuneration. The Scottish courts below had held that the contract was had a right to recover, but left the amount to be ascertained. Lord Atkinson said he was wholly unable to take the view that the contract had been null and void, or that the contractors had been guilty of fraud or recklessness. The earlier House of Lords was stating in the judgment of bords the information conveyed to him by the bords, and the change he made in the entry was for the very purpose of showing what he should have done to be their misdirection. The House of Lords actually found, so that the judgment might set forth the truth. The respondents had failed to prove fraud of any kind, and therefore the railway company was entitled to be allowed with costs. The Lord Chancellor and Lord Macnaghten and Shaw concurred. The Lord Chancellor said the House had only dealt with the question of alleged fraud, leaving other questions between the parties open if it were considered necessary to open other litigation.

The Skelmersdale Urban District Council, Lancashire, have instructed Messrs. Taylor and Wallis, Mr. Harry W. Taylor, A.M.I.E.S., of Newcastle-upon-Tyne, and Birmingham, to thoroughly investigate the existing system of sewers and sewage-disposal works, and to advise generally upon the construction of an improved scheme.

The Southampton Corporation received at their last meeting a report from the joint Parliamentary and water committee on the question of extending and augmenting the supply to the borough. The committee stated that they had been advised by Mr. W. Whitaker, F.R.S., and Mr. Horace B. Woodward, F.R.S., that they recommended the corporation to purchase certain fields adjoining the waterworks at Otterbourne for £2,500. The report was adopted, and the waterworks engineer was instructed as soon as possible to make a boring and report.

A vigorous effort is being made to secure funds for the construction of the new Cathedral Church of St. Mary in Edinburgh by the addition of the twin western spires, as a memorial to the Misses Walker, munificent donors to the building fund. At a meeting of the general committee of the cathedral, presided over by the Earl of Mar and Kellie, it was reported by the secretary and treasurer, Mr. H. Pope Gill, C.A., that the total amount received or promised to date for the building of the spires was £23,000, and £28,000 was now required. It was resolved to issue a general appeal for further aid.

The Board of Estimate of New York ratified, on Friday, the agreement with the Interborough and Brooklyn Rapid Transit Companies for new subway lines, that formally commenced its execution to the largest municipal transit project ever undertaken anywhere, involving an expenditure of about £24,800,000 sterling by the City alone in the next five years, and approximately £34,000,000 sterling for the private companies, who are sharing in the dual subway system. The contracts for the construction and operation of the new subways have yet to be adopted by the Public Service Commission and the Board of Estimate.

entirely artificial, and extensive cuttings were made, with a view to discovering its contents. Near the surface were found fortifications of Seleucid origin, and lower down the Roman and Greek periods were represented. One Roman building, complete except for its roof, was uncovered, and at a depth of 16ft. to 20ft. Hittite remains were just reached. Even 40ft. below the surface Hittite buildings were discovered, the latter being about B.C. 1500, while the higher level levelled off about B.C. 600. The Hittite houses of the 18th Dynasty which were unearthed had been obviously destroyed by fire. In the diggings the explorers clearly traced wooden verandahs and roofs which had fallen between the still remaining walls and trenches. In the mound were fortifications of various ages belonging to two distinct Hittite periods. In a smaller mound near by was a royal palace surrounded by a fortified stone wall. As a result of the excavations the plan of the Royal City was recovered, and some new sculptures found. The expedition next explored the whole valley from Marash to beyond Antioch, and visited the royal cities of four or five petty kingdoms, the most important of which was to Merne, the ancient capital of Ethiopia, to resume his work of the previous year. He succeeded in tracing out the walls of the royal city, which was about 1,000ft. in length. These walls were 16ft. thick, and at one time 30ft. to 40ft. high. Two special discoveries were made, one a small Roman Temple, and the other the royal baths which were one of the palaces. Not only had the buildings themselves been of considerable proportion, but in the excavations were considerable pieces of statuary of varied character, which at one time adorned its corridors and niches. In particular, a swimming bath, which was opened, had been subsequently largely filled up with statues or portions of them. For the sole purpose, it would seem, of serving as a foundation for walls subsequently built over the spot. These fragments and the medallions, frescoes, glazed ornaments, tiles, and other decorations with which the bath had been adorned contribute unique information concerning the splendours of that ancient barbaric monarchy in Central Asia.

Visitors to and residents of Boscombe are at last to have free and open access to the cliff frontage, which has never before been available to the public. The part of the sea front between the existing cliff pleasure gardens, to the east of the pier, and the Fisherman's Walk, at Pokesdown, was enclosed when the late Sir Percy Shelley settled there over sixty years ago, and built the Boscombe Manor House. Gradually a small part of the frontage came into the market, and the Boscombe Cliff Pleasure Gardens were laid out by the corporation; but it was not until last year, when Lord Abinger disposed of the Manor House estate for £70,000, that the cliff tops came into the possession of the Bournemouth Corporation. Lord Abinger, prior to selling the estate, made a deed of gift handing over the cliff front to the corporation, on condition that a strip of land made and the cliff tops suitably laid out. This work the corporation are now carrying out at a cost of £9,000. The Bournemouth Corporation are also spending £6,500 in making available by the public the land near the Fisherman's Walk. Lord Portman has also agreed to hand over the cliff top for the purpose of completing the drive all along the front from the Boscombe Manor estate. This will be three-quarters of a mile to the length of the promenade, which will thus be two miles in length.

At a meeting of the Evesham Rural District Council on Saturday there was further discussion as to the Broadway housing problem. The parish appealed to the district council to erect cottages under the Housing Act, and the council passed a scheme for erecting sixty cottages. Strong opinion has since been expressed by parishioners that fifty cottages will be sufficient. The architects, Messrs. Dicks and Waldron, of Market Place, Evesham, write saying they estimated that the extra cost of building thirty cottages now and thirty later would be not less than £900 or £1,000, in addition to the interest on half the cost of the

land, roads, and sewers. The Local Government Board wrote stating that they were prepared to approve the plans for the cottages, subject to suitable tenders being obtained. It was agreed to invite tenders for the erection of thirty and sixty cottages.

The Birkenhead Board of Guardians appointed on Monday Mr. A. L. Ryde, surveyor, of Parliament-street, Westminster, to value the property of the Mersey Docks and Harbour Board in the parishes of Birkenhead and Wallasey for rateable purposes. This decision is in accordance with a resolution passed recently by the board to co-operate with the West Derby Division, the parish of Liverpool, and the township of Toxteth Park to obtain an independent valuation of the whole estate under the control of the Mersey Docks and Harbour Board. The inclusive fee to be paid Mr. Ryde is £2,500 guineas.

The strike of the tailors having run its course, we are pleased, from experience, to direct the attention of our readers to the advertisement of Messrs. W. Evans and Co., of 257, Regent-street, which appears on another page. The advertised suit is so often a certainty of something cheap and made of shoddy, that it is really a boon to find a tailor like Mr. Evans who combines good style with first-class material, reasonable prices, and an experience of thirty years. Our readers, whether architects, assistants, builders, or surveyors, may safely refer to Messrs. W. Evans and Co. with the knowledge that their personal requirements will be intelligently studied in every particular, good wear guaranteed, and moderate prices charged.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (TO-DAY).—Surveyors' Institution. Country Meeting at Nottingham.
Junior Institution of Engineers.
"Standardisation of Engineering Calculations," by Arthur B. Smith, 25, Victoria-street, S.W. 8 p.m.

SATURDAY (TO-MORROW).—St. Paul's Ecclesiological Society. Visit to Eton college. Train from Paddington to Windsor 2.15 p.m.

MONDAY.—Royal Institute of British Architects. The Responsibilities of Architects and the Case of *Minty v. Waldheim*, by William Woodward, F.R.I.B.A. 8 p.m.

WEDNESDAY.—Institution of Municipal Engineers. Visit to Showrooms and Works, Doulton and Co., Ltd., Albert Embankment. 2.30 p.m.

THURSDAY.—Institution of Water Engineers. Summer Meeting at Bournemouth.

SATURDAY JUNE 8.—Association of Managers of Sewage Disposal Works. Meeting at Glasgow.

Mr. Alfred Haller Kendall, of The Grange, Clivich High-road, Gurnersbury, surveyor, who died Oct. 27, left an estate of gross value of £49,825 17s. 3d., of which the net personalty has been sworn at £3,841 14s. 10d.

Sacristies and other additions are about to be made to the Roman Catholic cathedral at Ballaghaderreen for the Bishop of Achonry. The architects are Messrs. W. H. Byrne and Son, of Dublin. They are also carrying out work of repair and renovation to the Roman Catholic cathedral at Ballina for the Bishop of Killa.

Memorial stones were laid on Monday of the Primitive Methodist Church Buildings to be erected at Pallion, Sunderland. The whole scheme consists of a church, Sunday-school, and halls, but at present it is proposed only to erect the school, hall, infants' room, and Christian Endeavour hall, leaving the church and vestries till later. The immediate total outlay, after the cost of the land, is estimated at £1,000.

An Imperial Commission has been appointed by the German Government, and composed of four noted Germans, who will visit the United States for the purpose of studying art, architecture, the museums, libraries, and similar institutions and activities in Boston, New York, and American cities. Composing the Royal Commission are Dr. Count von Podewils-Duernitz, Dr. von Borscht, Lord Mayor of Munich, Dr. Oscar von Miller, Dr. Walter von Dyck. One particular object of the Commission will be to seek ideas for a library building which the Museum of Natural Science and Technik at Munich is about to build.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up in a clear and concise manner, and should be addressed to the Editor of the Building News, Edinburgh House, 1, Arundel-street, Strand, W.C., and not to members of the staff by any possible misunderstanding.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter be sent by post, and should be addressed to the Editor of the Building News, Edinburgh House, 1, Arundel-street, Strand, W.C., and not to members of the staff by any possible misunderstanding. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsolicited contributions.

* Drawings of selected competition designs, important public and private buildings, details of old and new work, and other subjects, are always welcome, and for such no charge is made for insertion, of more commonplace subjects—small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time completed.

Cheques and Post-office Orders to be made payable to THE STRAID NEWSPAPERS COMPANY, LIMITED, and crossed London County and Westminster Bank.

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* The price of the paper to Canada is £1 1s. 6d., £10s. 12s. 6d. for 12 months, and 10s. 10d., £10s. 8s. 6d. for six months.

* Our Direct Subscription Agents for Australia are Messrs. Jagger and Kilbuck, Printers and Publishers, 10, York Chambers, 105, Liverpool-street, Sydney, New South Wales, who will receive Subscriptions at £1 6s. per annum on our account. Copies of the paper will be sent by us direct to the subscribers' addresses.

ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation Advertisements) is 6s. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 40 words. Special terms for series of more than six insertions can be ascertained on application to the Publisher.

Situations and Partnerships.

The charge for advertisements for Situations Vacant or Partnerships Wanted and Partnerships Offered is 6s. per line of Eight Words, and Sixpence for every eight words after. All Situation Advertisements must be prepaid.

Rates for Trade Advertisements on front page, and special and other positions, can be obtained on application to the Publisher.

Advertisements for the current week must reach the office not later than 3 p.m. on Thursday. Front-page Advertisements and alterations in serial advertisements must reach the office by Tuesday Morning to secure insertion.

* Replies to advertisements can be received at the Office, Edinburgh House, 1, Arundel-street, Strand, W.C., free of charge. If to be forwarded under cover of advertiser an extra charge of Sixpence is made. (See Notice at head of "Situations.")

RECEIVED.—B. T. E., H. and B.—L. C. S.—W. N. F. and Sons, Ltd.—H. B.—P. and P. and Co., Ltd.—C. S. H. and Co., Ltd.—W. B. L.—M. and Co., Ltd.—S. H. S.—P. T. S.—C. S.—K. E. C.—J. G. and Co.—W. E. W.—G. W. S.—P. S.—C. D.—C. S. L. M. and Co.—W. W. A.—Z. P. M. and Co.

VISIT.—Yes.

M. S. A.—Please send.

CORRECTIONS.—Sorry, but mention of all was impossible.

SWISS.—There is only one thing to do with the slippery granite steps—viz., to re-dress the surfaces.

A YOUNG ARCHITECT.—Requests to past candidates of that sort do not come within the scope of "Intercommunication."

T. AND S.—A couple of pages about entering for Gothic vaulting were given in "Intercommunication." In our issue of Dec. 22 last. Querists might really look up indices of recent vols. before sending.

J. R.—For your purpose nothing would be better than the Denon's gravel, in conjunction with Clargo's asphalt. Get the little booklet, issued by Clargo's Asphalt Co., we reviewed last week.

BIRMINGHAM.—We cannot say if the chimneys are played on or not. We should certainly try the bells. Consult a good firm like John Warner and Sons, Ltd., Spelman-street, N.E., or Jas. Barwell, Birmingham.

"BUILDING NEWS" DESIGNING CLUB.

DRAWINGS RECEIVED.—"Black Diamond" and "Vertiges."

VARNISHES, &c.

Per gallon.

| | |
|---|---------|
| Fine Pale Oak Varnish | £8 0 0 |
| Pale Copal Oak | 10 0 0 |
| Superfine Pale Elastic Oak | 12 0 0 |
| Pine Extra Hard Church Oak | 10 0 0 |
| Superfine Hardening for stained claucho | 14 0 0 |
| Pine Elastic Carriage | 12 0 0 |
| Superfine Pale Elastic Carriage | 10 0 0 |
| Superfine Finishing Varnish | 10 0 0 |
| Finest Pale French Copal | 18 0 0 |
| Extra Pale Durable Oil | 1 10 0 |
| White Copal Varnish | 10 0 0 |
| White Copal Enamel | 1 4 0 0 |
| White Copal Paper | 12 0 0 |
| Japan Gold Size | 16 0 0 |
| Best Black Japan | 10 0 0 |
| Oak and Mahogany Stain | 9 0 0 |
| Brunswick Black | 10 0 0 |
| Black | 10 0 0 |
| Knitting | 10 0 0 |
| French and Brush Polish | 10 0 0 |

The School Board for Greenwich have accepted the plans of Mr. William R. Glen, of Glasgow, for a new school in the west end of the town.

Mr. William Suzars, of Warrington, has been appointed engineer and surveyor to the Holbury Urban District Council, at a salary of £120 per annum.

Mr. Hermon E. Schuch has assumed the duties of Surveyor-General for the Province of the Transvaal in place of Mr. William H. Gillman, who has retired.

The rural district council of Armagh have adopted an improvement scheme under the Land Drainage Acts, under which they will erect seventy-six cottages at a cost of £15,152.

A Council school in Kitchener road, Cardiff, erected at a cost of £11,103, has been formally opened. The architect was Mr. W. Harpur, the city engineer, and the contractor Mr. F. Bond, of Cardiff.

Mr. Menasham Lea, formerly city surveyor of Turin, who for three years has held the position of engineer of Karachi, has been appointed chief officer and chief engineer, at an increased salary of £360 per annum.

Mr. J. C. Hawkins, water engineer to the Paignton Urban District Council, has resigned his position in consequence of having received an appointment as irrigation engineer under the Government of South Africa.

The Duchess of Beaufort opened at Strand on Thursday afternoon a new high school for girls which has been erected by the county education authority. She was presented with a key by Mr. R. Philips, the architect.

The Local Government Board will hold a public inquiry at the town house, Dundee, to-day (Friday), in connection with an application for widening Sutton-road. Southchurch-road is to be widened at an estimated cost of £750.

The Essex County Council have agreed to contribute to the Southend-on-Sea Corporation £1,800 towards the cost, estimated at £3,571, for widening Sutton-road. Southchurch-road is to be widened at an estimated cost of £750.

At Skelmersdale, the urban district council have instructed Messrs. Taylor and Wallin to investigate the existing system of sewers and sewage-disposal works, and to advise generally upon the construction of an up-to-date scheme.

A Local Government Board inquiry has been held at the town hall, Dewsbury, respecting an application by the joint hospital board for permission to borrow £2,000 to erect an addition to the present building at Chakenley Wood, Southill, for the purpose of dealing with diphtheria cases.

On Thursday night in last week, the Warble Urban District Council appointed Mr. John Hurst, assistant surveyor and sanitary inspector to the Hindley Urban District Council, as surveyor and sanitary inspector, in succession to Mr. R. H. Winterbottom, who has received a similar appointment at Irlam.

St. Joseph's new temperance-hall, Clones, was formally opened on Sunday week by Dr. McKenna, Bishop of Clogher. The hall will accommodate 600 people, and has cost £2,200. The architect is Mr. J. J. MacDonnell, Belfast, and the builder Mr. Isaac Copeland of the same city.

The North Staffordshire Field Club is appealing for subscriptions to a fund for the scientific excavation of the Roman site of the Roman Eccletoctum, which occupied the present site of the existing village of Wall, near Lichfield. Recent diggings on the site have revealed the lower courses of a very extensive range of buildings and numerous specimens of tiles and pottery, while in the past many interesting objects have been discovered.

Trade News.

WAGES MOVEMENTS

LIVERPOOL FURNISHING TRADE.—Two thousand Liverpool workers, members of the National Amalgamated Furnishing Trades Association, were locked out on Friday at the outcome of a dispute with glassworkers who form one of their branches. In response to a threat of the Glassworkers' Union to call out other branches, the masters closed down their works to union men. Apprentices and non-union men continue to work. The men demand increased wages, reduced hours, no overtime, and that no worker shall be discharged without the sanction of his trade-union official.

TRADE NOTES

The extensions to the Royal Infirmary, Bristol, are being completed with steel and double-fronted patent Manchester stoves in faience and with descending smoke-flues, by Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester.

Under the direction of Messrs. Jeffery and Lacey, architects, Ashford, the "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to Wye College, Ashford, Kent.

At North Meads, Southport, a new parish hall has been opened by the Bishop of Liverpool. The new building, which stands on the site of the old parish hall, has been erected at a cost of £1,250.

The extension of the county hall at Wakefield is now being proceeded with, and the estimated cost is £32,000. The object of the extension is to provide accommodation for all the clerks under one roof.

It is proposed to hold in Bristol in 1913 an exhibition of the building, furnishing, and home-planning trades and interests. The promoter is Mr. Chas. Howes, Centre Chambers, Bristol, who will be pleased to furnish all particulars.

Under the provisions of the Housing and Town Planning Act, the Guseley Urban Council have decided to inform the owners of twenty-five houses of certain defects, and resolved that at the next meeting they would consider the question of making closing orders.

The foundation-stone of the new Roman Catholic Church of Our Lady of Sorrows in Desborough and Cirencester streets, off the Harrow-road, was laid by Cardinal Bourne last week. The church will be a plain building with sanctuary arch, with accommodation for 400.

The new church of St. Gabriel, Sunderland, erected at a cost of £11,200, and built to accommodate a congregation of 80, has been consecrated by the Bishop of Durham. It is late Perpendicular in style, and consists of six bays, with shallow quasi-transcepts all under one roof. At the junction of nave and south transept is an octagonal bell-turret.

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TENDERS.

* * * Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender; it adds to the value of the information.

BRISTOL.—For erecting a school, for the Fambrook Victoria-place, Baverford, architect, Quantities by Mr. G. A. Webster, 12, Gray's Inn-square, W.C. — Lloyd, F., & Co., Milford Haven ... 2,597 0 0
Harries, T., Neyland (accepted) ... 1,325 0 0

BRISTOL, S.W.—For the erection on the Bear site, Bristol, of a school for 125 physically defective children, for the London Education Committee.— Parker, G., and Sons, Peckham ... £2,145 0 0
Cruges and Co., Chesham ... 6,295 0 0
Garrett, J., and Sons, Balham Hill, 6,250 0 0
Smith, J., and Sons, Ltd., South Norwood ... 6,130 0 0
Dowds, W., Walworth-road ... 6,100 0 0
Cooper, R., and Sons, Sussex ... 6,790 0 0
Fairclough, J., and Sons, Newcastle ... 6,900 0 0
Rice and Son, Stockwell-road ... 6,785 0 0
Leng, T. D., Deptford ... 5,687 0 0
Smith, J., and Sons, Charlton-road ... 5,695 0 0
Bower, J., and C., Ltd., Upper Norwood ... 5,684 0 0
Jolliffe, J., Chelsea ... 5,577 19 1
Lawrence, E., and Sons, Ltd., City-road ... 5,570 0 0
Johnson, W., and Co., Ltd., Wandsworth-common ... 5,577 0 0
(Architect's estimate, £5,568.)
Recommended for acceptance.

CAMBERWELL, S.E.—For rebuilding the schools in Lippes-road, Camberwell-road, for the London Education Committee.—
Allen, J., and Sons, Ltd., Palmerston Works, Kilburn ... £19,419 0 0
King, and Sons, Vauxhall Bridge-road ... 18,587 0 0
Carmichael, J., Wandsworth ... 18,099 0 0
Pattison and Fotheringham, Ltd., Islington ... 17,813 0 0
Smith, W., and Sons, Eldon Works, Harley-road ... 17,598 0 0
Wall, C., Ltd., Fenchurch-road ... 17,398 5 0
Appelby, J., and Sons, Cornwall Works, Southwark-road ... 17,241 0 0
Powrie, W., Walworth ... 17,147 0 0
Mansfield, J., and Sons, Walworth Gordon, G., and S. M., Pembroke Works, Kilburn ... 16,680 0 0
Johnson, W., and Co., Ltd., Wandsworth Common ... 16,944 0 0
Holloway, H. L., Deptford ... 16,700 0 0
Bower, J., and C., Ltd., Upper Norwood ... 16,379 0 0
Holmes and Greenwood, Ltd., Brixton ... 16,378 0 0
Lawrence, E., and Sons, Ltd., City-road ... 16,365 0 0
Leng, T. D., Evelyn-st., Deptford ... 16,302 0 0
(Architect's estimate, £16,278.)
Recommended for acceptance.

CAMBERIDGE.—For the extension of this School of Agriculture, for the University of Cambridge, Mr. Arnold B. Mitchell, F.R.I.B.A., architect.—
Sindall, W. ... £10,057 0 0
Recommended for acceptance.

CLATTERBUCK.—For erecting children's home and additions to warehouse, for Writal Union Guardians, Messrs. J. and B. Davies and Son, 14, Newgate-street, Chester, architect, Quantities by the Messrs. J. and B. Davies and Son, 14, Newgate-street, Chester ... £3,672 8 5
Jones & Hough, Heswall ... 3,514 0 0
Rehman, P., Birkenhead ... 3,467 0 0
Lee, J., and Son, Bolton ... 3,443 0 0
Fleming, A., Neston ... 3,379 9 6
Ford, W., & Co., Ltd., Brackenhall Fleming, W., & Co., Neston ... 3,324 10 0
Hopley, J., Little Sutton ... 3,274 18 0
Linaker, S., Horley ... 3,193 11 0
Accepted provisionally.

CROWESEY, S.E.—For the supply, delivery, and erection of boilers and superheaters required in connection with the enlargement of Crowsey pumping-station, for the London County Council.—
Wilson, W., and Co., Glasgow ... £3,744 0 0
Yates & Thom, Ltd., Blackburn ... 3,663 0 0
Aronson, D., and Co., Dukinfield ... 3,475 0 0
Spurr, Irmair, & Co., Ltd., Wakefield ... 3,410 0 0
Galloway, Ltd., Manchester ... 3,212 0 0
Recommended for acceptance.

DONCASTER.—For erecting Liberal club, Messrs. Garraide and Pennington, Pontefract, architects. Quantities by the architects.—
Bennett, J., and Sons, Doncaster (accepted) £1,732.

DUNDEE.—For electric lighting installation at Dundee and for the Dundee urban district council.—
Gaskin, J. C., ... £335 0 0
Meldon, J. A., and Co., ... 125 0 0
Watson, J. J., ... 124 11 0
Gowdy, J. M., and Co., ... 123 8 0
Gallacher, E. (accepted) ... 81 10 0

DUNDEE, SOME-ET.—For building a cistern and providing fittings at the parish well.—
Glenmills, H., Ltd., (accepted).

DUNFERMLINE.—For carrying off the second section of the main drainage of Dunfermline and Rosyth, thence from Jamieson to Primrose, for the town council.—
Shanks and McEwan, St. Vincent-street, Glasgow (accepted) ... £13,766 4 2

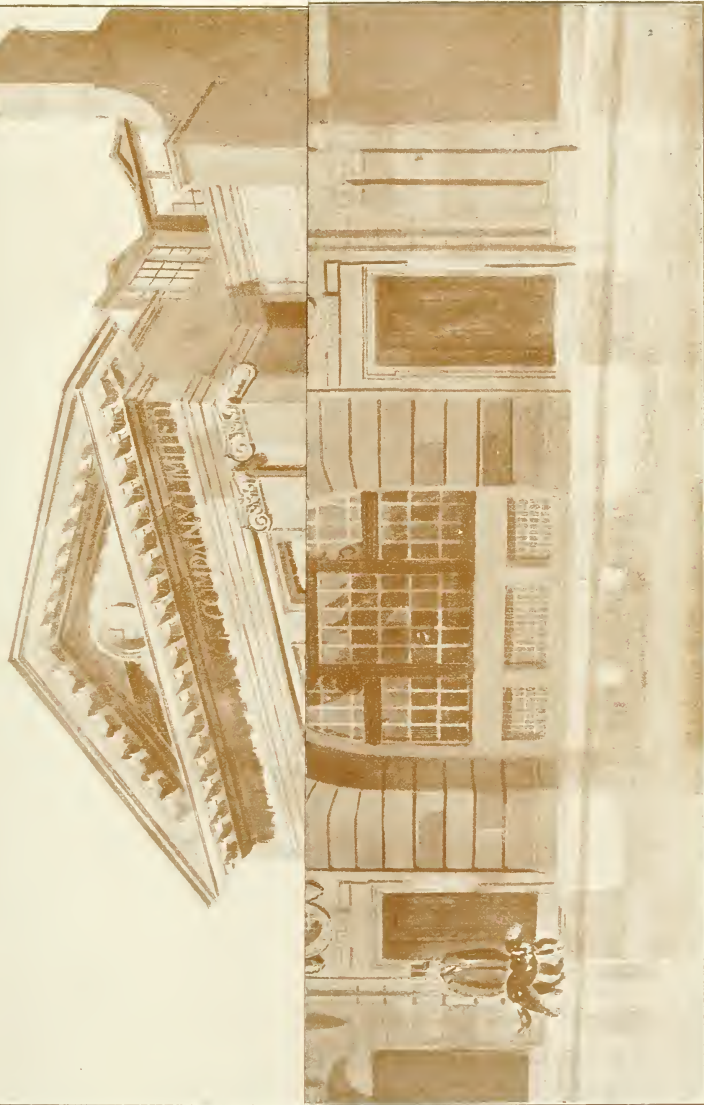
ELTHAM, S.E.—For the erection of four new hostels to accommodate 300 soldiers, for the London County Council, the existing Southwood House, hotel, at the Avery-hill Training College, for the London Education Committee.—
Smith, W., and Sons, Blackheath £39,119 7 0
Lawrence, E., and Sons, Ltd., City-road ... 44,504 0 0
Cox, J., and Sons, Wandsworth ... 44,253 0 0
Thorne, F., and T., Isle of Dogs ... 42,267 0 0
Howell, J., and Sons, London for acceptance ... 42,141 0 0
(Architect's estimate, £42,834.)
Recommended for acceptance.

(Continued on page XVII.)

[illegible]



HOUSE FOR SIR ANDREW N. AGNEW, BART., SMITH SQUARE, S.W.
Messrs. DETMAR BLOW and FERNAND BILLEREY, Architects.



ATLAS INSURANCE OFFICES, BIRMINGHAM—Mr. PAUL WATERHOUSE, M.A., F.R.I.B.A., Architect.



ST. LUKE'S CHURCH, WEST HARTLEPOOL: SELECTED DESIGN.
Messrs. LOFTING and COOPER, Architects.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Edinburgh House,

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Strand, W.O.

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| Lloyds New-Bank, St. James's-street, S.W. | Moore, Waller and Son, Architects. |
| Hotel of the Reconnoitre, near Leeds. | M. Tongue. |
| Moore, F.R.I.B.A., Architect. | |
| Notgrove Manor, Gloucestershire. | Mr. A. N. Prentice, F.R.I.B.A., Architect. |
| Houses, Leek, Staffordshire. | Mr. Reunall T. London, Architect. |
| Church of St. Andrew, Cleveleys. | Mr. R. H. Caniffe, Architect. |
| St. Raphael's, Buxton. | Mr. J. Coates Carter, F.R.I.B.A., Architect. |
| Reinforced-Concrete Buildings. | By Mr. W. G. Shipwright. |
| House at Harpenden. | Mr. J. E. Dixon Spinn, Architect. |
| Brick Ornament. | |

CROSBY HALL EXHIBITION OF MURAL PAINTINGS AND DECORATIONS.

An exhibition of nearly two hundred examples of very varying interest and merit, including designs by Mr. John S. Sargent, R.A., Sir J. E. Millais, R.A., Albert Moore, Mr. Walter Crane, Mr. Henry Holiday, and Ford Madox Brown, was opened to the public last Monday at More's Garden, Chelsea, in Crosby Hall. That very few of the proposals exhibited rise to any degree of distinction tends to demonstrate the fact as to comparatively little advance having been made of late years, in a general way, towards a higher appreciation of decorative colour and the application of ornament to interiors of a monumental order. The competitions held at the Royal Academy for the Decorations of Public Buildings have likewise, for several seasons now, evinced the same shortcomings, while the prevailing ineptitude of design characteristic of wallpaper hangings contrasts strikingly with the beauty and good drawing so satisfactorily prevalent, under the influence of William Morris and his school, less than a generation ago. Any attempt, therefore, such as this Chelsea show, to encourage and improve the application of design to mural work, ought to be held in favour.

Following the printed list of the exhibits, we note some of merit. In the absence of general representations of the Tempted wall-paintings by Miss Emily Ford in St. Peter's Church, L. western, and Salford Parish Church, we can only judge of the Fragment from "Emmans" in the former, and by the heads in fresco from the latter. Their profiles, so admirably delineated and strong in colour, seem to stand out too prominently as silhouettes against a light background—a common fault, which gives a disturbing result.

"The Nativity" is the subject of a competition for decorating a wall-space in St. Jude's on the Hill, and at the base occurs two semicircular arches, which different proposals have recognised in singularly different ways, the tympanum above, as the field for enrichment, being arranged variously. Mr. Woodroffe Rhead's, on the whole, is perhaps the best, though his scheme in blues, greys, and purple, is somewhat uncommon and possibly cold in effect. Encircling the Virgin and Child are depicted the Magi and others in adoration, while the archangel above the manger-throne guards the holy family. The cartoon of the Virgin to full size is a demonstration of the artist's ability in draughtsmanship. Hanging some distance away from this work, No. 18, we reach the

most serious, though very different, competitor's idea for the same church, No. 35, by Mr. H. R. Mileham. In this scheme the artist has built up the manger timberings with broad framings, which space out his design in a conventional way, somewhat appropriate in recognition of its nature, the uprights rising from the haunches of the twin arches at the base. The Virgin and Child occupy the central compartment, and angels occur on each hand, surmounting the composition canopy-ways, though in a sense, perhaps, some might say they were climbing about the carpentry of the erection. Right and left below, the oxen and the ass are represented as in the stalls. The proposal is busy, no doubt; but it is flat in treatment, as it should be, and the author sends a detail of the central subject.

From the Gallery of Modern Art, Dublin, Messrs. Alfred Cooper, H. B. Wright, and Conn Rae, send three designs of some power and strong colouring in illustration of "The Meeting of Cuchulain and Emer," marked "Celt. I. 2, and 3." We prefer the first so marked panel, though the struggling figures display strenuous action, and the tints are crude; but the composition is powerful and self-contained, as a panel demands. "Three Shouts of the Sons of Tuireann," an Irish legend, illustrated here by Mr. John M. B. Benson, is a piece of good drawing, particularly the heads of the figures in detail.

"Our Lady of Sorrows" is, perhaps, the most notable exhibit in the hall, though it is hung somewhat high by the corner, in not a good light. The artist, Mr. John S. Sargent, R.A., has combined applied metal in the range of candlesticks at the feet of the Virgin and the group of swords piercing her heart as she stands on the present moon. Such a work needs to be set as a centrepiece to be seen to advantage, and its merits, though eclectic in execution, are of a high order, dignified and devotional. The series of lunettes, with blue-back grounds and stone-coloured figures, by Sir J. E. Millais, P.R.A., lent by the Leeds Art Gallery, do not show this great master to advantage, and as decorative works they do not appeal to us. The mural decoration for Boston Library, "Israel and the Law," by Mr. John S. Sargent, R.A., is much more worthy of remark, and, of course, is incomparably more important. Hebrew letters frame the composition, which was lent by the painter. The same artist's decorative conception of the seated Virgin, enthroned below angels bearing her golden crown as Queen of Heaven, is a notable example

of his skill, and entitled "Annula Domini." "Venus" and a mural panel by Albert Moore are lent by the Victoria and Albert Museum. The Society of Antiquaries have contributed a very fine copy, by Richard Smirke, of wall-paintings formerly existing in St. Stephen's Chapel, Westminster, and rendered in gold and colour, which, if a trifle hard in this careful representation, by reason of its newness, is an exceedingly capable illustration of an historical piece of work of great interest. The charcoal cartoon of "Queen Eleanor" by Ford Madox Brown is lent by Mrs. Ernestine Mills, and will attract some attention as the work of this master.

Messrs. Crosse and Blackwell's Jam and Pickle Factory designs in competition fall short of the ideal; but Miss B. Scholz is to be congratulated on the drawing of her little boy from the design "Picking Gooseberries," though the child would look well at any scale. Mr. W. Tristram lends six copies, hanging in the bay of the hall, of Early English wall-paintings. The study of a part of a frieze in the Chapel of the Ascension at Baywater, by Elizabeth Shields, and lent by his executor, is a very fine piece of delicate drawing illustrating "The Descent of Manna." The craning figure emptying the manna before Moses is exceptionally strong, and so is the design of the Prophet himself seated at the end of the panel. Mr. Henry Holiday contributes several characteristic examples of his facility of design, and we notice Mr. R. Anning Bell's mosaic panel outside Ilminan's Museum at Forest Hill, in quiet colours, with figures of "Humanity," "Love," "Faith," "Constancy," "Charity," and the rest grouped spiritedly and elegantly in a range of frieze design. Mr. L. McD. Gill shows a scheme for decorating the Lower Hall, Ladies' College, Cheltenham, with blue-and-green arch-roof principals adroitly shown in perspective, with foliations on the walls and between the windows capably suggested. Mrs. M. M. Jenkin shows a design to commemorate the work of Florence Nightingale in a pleasing way with a nurse standing in a triple wood screen at the end of a hospital ward, modestly managed in graceful lines; but we doubt if the perspective of the range of beds can be justified in mural decoration, suggesting rather a hole in the wall. Plenty of Medieval precedents can, no doubt, be quoted in justification; but still the objection stands. We have said enough to warrant the remark as to the exhibition being well worth seeing, and so is Crosby Hall, with its noble old roof.

MODERN ENGLISH LANDSCAPE.

This exhibition of contemporary landscape art at the Grafton Galleries, organised by the International Society of Sculptors, Painters and Gravers, is an interesting collection of 245 works, principally by artists identified with the New English Club and the International Society. Its range is wide—wider, perhaps, than its time—contemporary, and yet, on the other hand, it is narrow in its range of selection. Contemporary art at the Royal Academy, for instance, is not, it is true, remarkable for its pre-eminence; but still it can hardly be said to be represented by G. F. Watts, Lord Leighton, and the few others whose works appear.

Still, it is a good show, and not without its lessons to those capable of appreciating the change in British landscape art during the past thirty years. We think, of course, that the reaction against the imitative tendencies of the superseded school has gone too far, and that some of the men of to-day paint, as it were, comments on Nature—sometimes poetic and subtle, sometimes more prose, and too seldom deign to charm the average man of culture with a reproduction of the beauty they fuss about. That, however, is by the way. We have very little Post-Impressionism to give one indigestion and there is much to attract.

Most of all, perhaps, the works of Mr. Walter Greaves, all characteristically Whistlerian, "Chelsea Wharf: Winter" (3), we think the finest, though perhaps "Chelsea: Snow" (4) is the more skilful. Mr. P. Wilson Steer is hardly at his best in any of his five exhibits, of which "Hawes in Yorkshire" (7), pleases most. Mr. James Charles is well represented. His "Sussex Landscape" (19) and "The Old Mill House" (20) are good. The late C. E. Holloway is given eleven exhibits, "The Purfleet" (28), "The Breezy Day" (29), and "The Breakwater" (30) being the most attractive. Cecil Lawson's rather large "Hop Gardens of England" (39) is able, but the houses and the road to the left really interest more than the name-subject. The late Buxton Knight's exhibits are numerous—there are a dozen of them; but each is well worth its space. Vigorous and homely, if sometimes rough, his work grips one at once, as in "Chorley Wood" (40), "Chesil Beach" (45), and "Portsmouth Harbour" (48).

Of the eight subjects by the late G. F. Watts, one would not miss one, though most seem to lack the more homely characteristics of his English work. Still, for beauty of colour there are few things in the room to match "Near Florence" (54) or "Bondum, Asia Minor" (56), while the three Scottish scenes—"Loch Rulhven" (57), "Scotch Heather" (59), and "After-glow" (60)—are rich in romance.

"Low Tide" (71), by Mr. Alexander Roche, is happily conceived and executed. Mr. E. A. Watton's "The Farm" (82) we have mentioned before, and with justly due praise. Mr. William Rothenstein's "Deserted Quarry" (90) is the better of his two exhibits. "The Landscape with Men in a Boat" (93), by Alphonse Legros, is a work of power indeed, and in its way, one of the most attractive in the exhibition.

Among other creditable works those should be noted by Mr. C. J. Holmes, especially, his "Carew Creek" (127) and his "Bude Breakwater" (130); "The Storm" (107), by the late Arthur Melville; "A Hundred Miles from Hyde Park Corner" (110) and "In Arcady" (134), by Mr. A. S. Hartick; Mr. John Lavery's five works (111, 112, 113, and 114), all good—the first "Tangier Harbour," especially; Mr. Philip Connard's "The River Mar" (119); Mr. Francis H. Newberry's "The

Shepherd's Star" (100); Mr. James Pater's "The Stronghold" (126); Mr. Algernon Talmage's "The Cliff" (133), and Mr. Mark Fisher's "Meadows on the Start" (25).

The eight fine Brabazons in the end gallery are its chief attraction; no one must miss them (149, 150, 151, 153, 154, 155, 156, and 181). Mr. Muirhead Bone's "Lower Town, Perugia" (138) and "San Ercolano" (188) are very good. There is a "Landscape" (219) by Whistler, and seven fine drawings and etchings by Alphonse Legros, "La Charron" (228) the best. Mr. Samuel Teed has a good water-colour, "Misty Morning, from the Tower Bridge" (193).

BRICK ORNAMENT.—VII.

(Continued.)

PILLARS AND COLUMNS.

Fig. 13 indicates the method of bonding shown in Fig. 11 more clearly. Fig. 14 shows a slightly more elaborated base, the capping following in similar manner. Fifteen

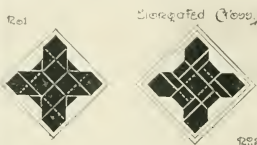


FIG. 13.

illustrates the adaptation of the bullnose brick to such columns, which gives a bold and pleasing effect; it could also doubtless be worked in conjunction with the 9in. half-round coping brick. The slight relief afforded the capping piece is obtained by similar bricks and a pointed coping having slightly incised panels to introduce a little relief. It should be borne in mind that any of the examples can be considerably improved by the introduction of lining, pattern relief, or raised and sunk work, although these have not been shown previously. Figure 16 illus-

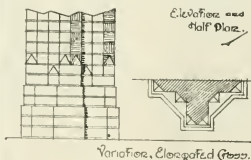


FIG. 14.

trates various methods of adapting the cavetto or other moulded bricks by somewhat similar treatment. The second example on this figure indicates a cut cavetto brick introduced under the pointed coping as an ornamental relief course to the cap. Quite a different effect might be again obtained in this position by use of the ovoid in a similar manner. Fig. 17 is an example of the solid square column, presenting a vertically lined and moulded face to each side; a type necessarily somewhat expensive if built in a good bond, as it should be when loaded to any extent. For some fairly light positions they might be constructed with a simple reversion of the bond, or an occasional tie-brick or two, involving merely a little cutting in a course here and there. To obtain a thoroughly effective break of the centre joints the methods shown have to be adopted. There are one or two other slight variations for obtaining the same results, but the cutting work cut at much the same. The more customary method, shown in 17a, is really a trifle more expensive, owing to extra wastage. It should be noted the centre is formed in 17 by a whole brick and two Queen closers,

If the column is rusticated with alternate moulded brick, matters are at once simplified, dispensing with a great deal of cutting. This forms a very effective column, and it should be grasped readily enough without special plan and elevation. A combination column

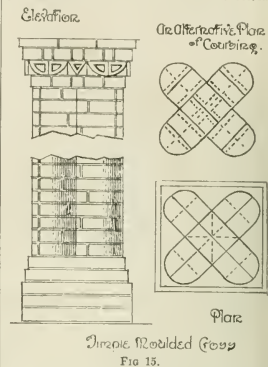


FIG. 15.

is illustrated in Fig. 18, showing method of extension, with a fair system of bonding. To obtain a thorough breaking of the bond throughout, where it might prove essential, the moulded bricks would require cutting as in the previous example. Coming to larger pillars still, in use for heavier and bolder types of work, it will be found that far less cutting is involved generally, even where a great many moulded bricks are used. This is illustrated by Fig. 19. As seen, with a larger column it is possible to work in more whole bricks, especially by adapting the splay to the flat angles. Either system of bonding, reversed alternately, would give good results; or that shown by the dotted lines on No. 1 might be occasionally used. The different moulded bricks are merely introduced to

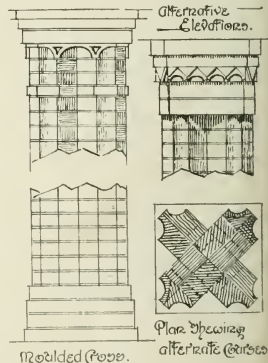
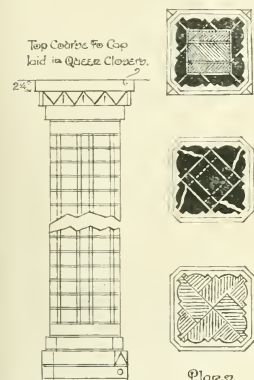


FIG. 16.

convey an idea of the effect of each. Although such variations might be somewhat original, they would not look so well in actual execution as uniformity of the moulded bricks; with this class of pillar, the former example, Fig. 18, being longer and more slender, is a different matter. Again, it would involve a different method of bonding. Fig. 20 illustrates another design with moulded bricks, producing a panel-like angle

or face, according to the setting. As will be seen, the major portion can be constructed without any cutting, a breaking tie being occasionally introduced, as shown by the



Elevation of
Square Moulded Pillar.

FIG. 17.

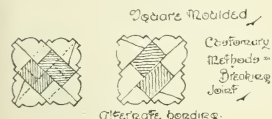


FIG. 18.

dotted lines in No. 2. Fig. 21 is a rough sketch showing the use of the ordinary half-round coping-brick, which lends itself readily to column construction for many purposes. A slight entasis can be given by a trifling variation in jointing, those at top and bottom being fine set. Angle panelling with pillar

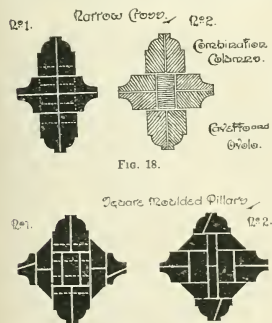


FIG. 19.

work is very effective for many purposes. Fig. 22 illustrates this method. No. 1 might be used for many forms of garden work—pedestals, etc.—with alternate bonding, as shown by the dotted lines and crossed portions. For interior work, or otherwise, where some considerable stress has to be con-

sidered, a thorough breaking of the joints to insure effective bonding is imperative. No. 2 on this figure is, perhaps, the most work-



FIG. 20.

manlike method, but involves cutting practically the whole of the bricks to attain this end, only two whole bricks and the centre Queen closer being obtained in each course. No. 3, at first glance, appears to be a much

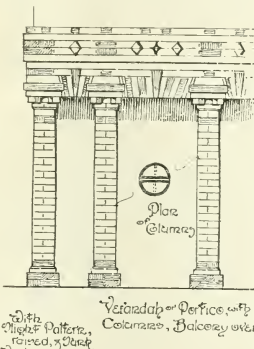


FIG. 21.

more complicated and expensive piece of work; such is not the case on further consideration. In one course, the whole of the outside bricks are cut (indicated by the crosses), the centre being formed by a whole

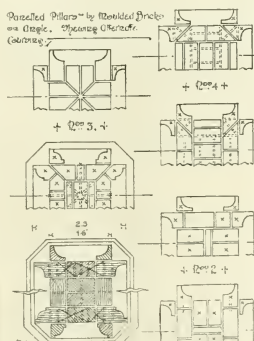


FIG. 22.

brick and two Queen closers. On the next course, a great deal of cutting is saved by the introduction of splay-bricks, merely four angles requiring cutting by this method. A desirable feature, too, gained with this

method, is the equality of jointing as shown on face: this becomes exceedingly valuable when used in conjunction with raised and sunk, pattern, or lining work. No. 4 illustrates what is really the best method from the point of view regarding expense. By using three whole bricks in the centre, Queen closers on face, combined with whole splay, as shown, it is merely necessary to cut the angles, when a thorough break in the bonding is obtained throughout. Each of these methods have their own particular advantages for special positions or requirements. Whilst No. 4, for instance, presents a somewhat coarser appearance in the face jointing, it could be used in conjunction with No. 3, introducing the latter at points necessary for any pattern work, etc., where the more broken-up appearance given by the jointing would prove valuable.

WALTER G. KERBY (Architect).

COLOUR PHOTOGRAPHS.

A very good idea is afforded as to what is being done in the way of colours applied to photography by the charming exhibition of transparencies and prints now on view at 24, Wellington-street. Mr. A. B. Warburg shows a pair of Arabic bichromate prints next to three examples from life by Mr. Walker Munro in Pinatype three-colour negatives, the third being quite the best picture, but possibly this may be due to the subject. The colour collotypes shown by the London Stereoscopic Company and others by the Medici Society are so beautiful, and particularly the "Madonna and Child," after Botticelli (14); "The Concert," after Terborch (13); and "Lady Hamilton," after Romney (15), all of which are extremely fine, that they somewhat spoil by contrast the crude and artificial paper prints from tricolour negatives, or by the bleach-out colour process, also on view. Mr. F. T. Holler shows a three-colour collotype of "Venice," after Turner, which certainly justifies his reputation for good execution, and we thought Mr. Samuel Manners very successful with enlargements from quarter-plates of roses and fruit, developed on three-colour glass carbons. The coloured plate of "Apples" (37), by Mr. John Riley, of Dundee, displays no little merit, and with another fruit study by him is a Sinop collotype three-colour print. Autochrome, monochrome, and four negatives from yellow, green, red, and blue filters are displayed together in one frame by Mr. Charles Harkins (43), as well as the Paget Screen plate in its several processes of development (44). Mr. Burchard sends several pictures produced by bichromated size, giving somewhat the effect of water-colours on rough paper, and, when seen from a distance, are effective. A large number of transparencies form part of the exhibition in a darkened room, including some architectural views from Italy and Sicily. The micro-spectra camera shown by Messrs. J. and E. Rheinberg, of London, is a complicated but ingenious instrument in which a prism is adjusted, throwing prismatic colours on a photographic transparency fixed in the centre. The plate on view represented a series of butterflies, yellow on the right hand and blue and purple on the extreme left, the print having a corrugated screen attached to it. This exhibition closes to-morrow (Saturday).

Finchley's municipal housing scheme has proved so successful that there is a balance of nearly £600. There are sixty houses let at rentals of from 10s. 6d. to 5s. 9d.

The Ulster Hospital for Women and Children in Templemore-avenue, Belfast, has just been opened. The architects are Messrs. Watt, Tulloch, and Fitzsimmons, of Victoria-street, Belfast, and the builders were Messrs. The Railway Brothers, of Ravenhill-road, Belfast.

Mr. E. D. Groves, the surveyor, was presented, at the last meeting of the urban district council of St. Austell, Cornwall, with an oak dining-room mantel clock inscribed: "Presented to Mr. E. D. Groves by the members and officers of the St. Austell Urban District Council on the occasion of his marriage, April 26, 1912."



FIG. 1.

REINFORCED CONCRETE BUILDINGS.

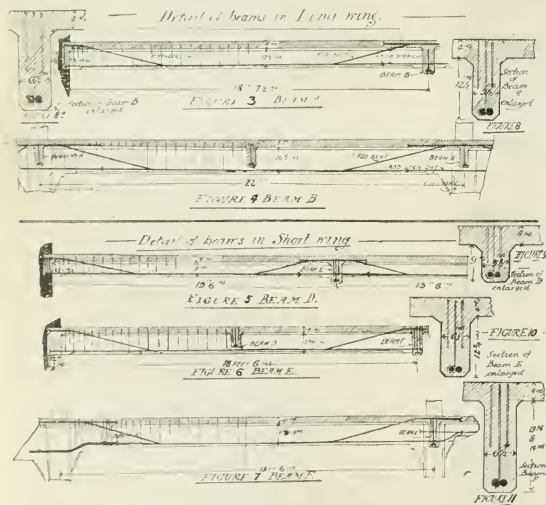
By WM. G. SHIPWRIGHT, Licentiate R.I.B.A., M.C.I., and Chartered Building Surveyor (by Exam.)

Factories, Lower Clapton-road and Ridley Road, Hackney.

Messrs. John Hamilton and Sons, Architects.

A very general impression obtains that reinforced-concrete construction necessarily implies heavy beams and columns and that a

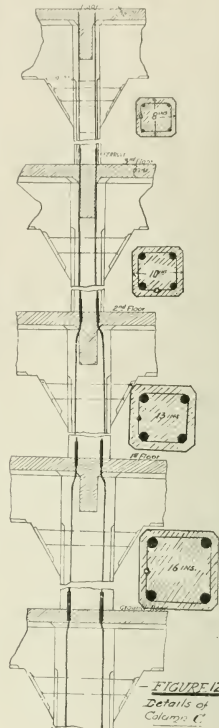
Two examples of reinforced concrete as applied to the internal construction of warehouses, illustrated in the present article, emphasise some useful features in design by means of which considerable strength may be acquired without the bulkiness which so often forms an undesirable feature in building schemes carried out in this material. In both cases the greater part of the weight on the floors is carried on reinforced-concrete beams and columns. The external brick walls



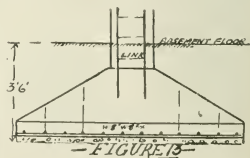
more or less counter-some appearance accompanies the employment of this material, especially in positions where the structural members are subject to heavy loading. Although this assumption may be substantially true of a large number of the factories erected, it is indeed far from the case where the same reasonable consideration and ingenuity is exercised in the design which would be accorded to other forms of construction.

merely being employed to a limited degree and supporting only a small part of the superimposed loading. The reinforced work in both buildings was designed by Mr. E. P. Wells on his system of reinforced concrete and carried out by Messrs. F. Bradford and Co., of Coopersale road, Homerton. The subject of the first set of illustrations is the Penitentiary Factory, erected in Lower Clapton-road, for Mr. F. Slanman, and a complete plan of one floor with the accompanying

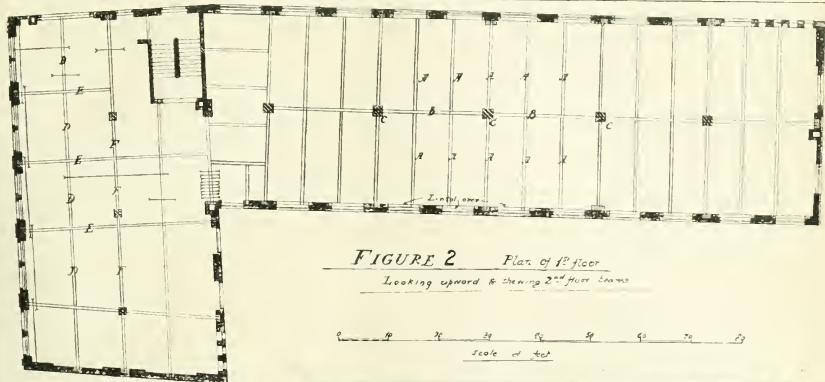
detail and one of the tiers of columns with details of connection is given, the same method being adopted in the second case, which is a factory erected for Messrs. Taverier in Ridley road, Dalston. One of



the essential features this scheme illustrates is the systematic co-ordination and arrangement of the principle members upon a simple design repeated upon each floor. It will be noted, for instance, that the bays in the longer wing being all exactly similar, one type of construction is repeated for each successive bay throughout the floor, whilst the same type applies equally to all floors throughout the building, with very slight variation, relating chiefly to the size of the



columns. The saving in point of design and calculation by adopting such a system of working is considerable, whilst the manipulation of the plant and material on the site is facilitated in a marked degree, particularly in the provision of the centering and shutter-



ing, with a consequent saving in both time and cost.

Another important feature in the design is the regular distribution of the loads on the outer supports, in order to secure an even loading of walls, foundation, and subsoil of site—a result which must be achieved in conjunction with the collection and centralisation of the interior weight so far as is practicable, in order to secure the minimum of interference with the lighting and use of the premises by columns and supports intersecting the floors. These objects have been effected in a marked degree in the present case, only eight columns being employed in a total floor area of over 7,000 superficial feet. This has been arranged in the longer wing by collecting a series of loads on beams "A" (See Fig. 2) and transmitting them by means of beams "B" to column "C," each of which forms the central point in an area of 1,700 superficial feet.

With regard to the loads on the outer walls it is frequently desirable to adopt the course followed to some extent in the present instance by introducing reinforced columns in the external walls rather than employing the piers, when the provision of sufficient area to provide the requisite strength often renders the work quite as costly as the provision of separate reinforced columns, and involves the surrender of that very vital element in town factory properties—viz., window-space.

The construction employed in the bay, of which column "C" forms the central feature, is shown in detail (Figs. 3, 4, 8, and 8A). The floor is 4in. in thickness, with the usual reinforcement of thin rods. The bays are 7ft. wide between the beams A-A. These beams, which have an average span of 18ft. 6in. are 16in. deep, including the floor, and 5in. wide. A dual rod reinforcement (Figs. 3 and 8A) is employed in the centre of the span, one of the rods turning upwards at the points of contra-flexure to resist the tensile bending stress above the point of support in beam No. 2, and to assist the vertical linked hangers and bonders in resisting the shearing forces.

Of the same type is the supporting beam B (Figs. 4 and 8), which is constructed in an overall depth of 20in. It is 6in. wide, and supports the loads from four beams (A), concentrated at two points in an effective span averaging 22ft., an increase being made in the shear members of these beams, on account of the concentrated loading.

The columns "C" supporting these beams are shown in details (Fig. 12). The section increases from 8in. square, supporting the roof to 11in. under the third floor, 15in. at the first floor, 18in. at the ground, and 22in. square at the basement. Four rods linked at 12in. intervals are used throughout, and the connection between the rods at the points of decreasing sectional area is effected by



FIG. 14.

means of 9in. ferrules, which appear to make a much neater, more staple, and facile connection than the ordinary wired joint. The manner in which the loads are introduced from the intersecting beams at each floor by

the use of reinforced concrete brackets reduces the risk of defects due to cracking and jointing and generally increase the stability. The type of foundation used for these columns is shown in Fig. 13; 64 square

area, they are 2ft. 6in. total depth below the foot of the shaft. A base reinforcement composed of twenty small rods is provided about 1in. above the under surface, for which a prepared bed of 8 in. of Portland cement concrete is provided. A longitudinal section of the floor in the shorter wing is shown in Figs. 5, 6, and 7. The construction of beam "F" (see Fig. 5) follows that adopted for beam "A." The span in this case is 13ft. 6in., the depth of the beam 13in. 8in. below the floor, and the width 6in. The supporting beam "E" (Fig. 6) carries the weight from the former as a centrally constructed load across the 18ft. 6in. span between beams "A" and the external wall, and the span of beam "F" between the centre of the columns is 19ft. 6in. These three beams are constructed with a depth of 16in. and 22in. respectively, and a width of 6in. The depth of "F," which is shown in detail in Fig. 7, being varied from 18in. to 24in. in accommodation to the varying stresses produced by the differing positions in which beams "E" intersect them. The columns are similar to those employed in the longer wing, and resemble columns "C" (Fig. 12) in detail.

The construction throughout this building is remarkably light and unobstructive when it is considered that it has been designed to carry a superimposed load of 2wt. per superficial foot.

A test of the sensible and practical character previously advocated in these articles has been made by loading three of the bays on the second floor up to 50 cwt. per sq. ft., the maximum calculated load. The deflections, unmeasurable in most cases, reached the maximum of 1.3500 of the span, and showed that unquestionable soundness and rigidity which, skillfully designed and carefully executed reinforced concrete invariably possesses.

(To be continued.)

THE NEWER RESPONSIBILITIES OF ARCHITECTS AND THE CASE OF "MINTER V. WALDSTEIN."

A paper upon this subject was read by Mr. William Woodward, F.R.I.B.A., F.S.I., at an extra meeting of the Royal Institute of British Architects held in the west gallery at 9, Conduit-street, W., on Monday evening, The President, Mr. Leonard Stokes, occupied the chair.

The lecturer, in the earlier part of his paper, summarised the action "Minter v. Waldstein," heard by Mr. M. Muir Mackenzie, the Official Referee, on some 25 days in July and August last year, judgment being given on October 20, 1911. (The case was fully reported in our issues of July 21 and 28, August 4, 11, 18, and 25, and October 27 pp. 136, 163, 204, 239, 278, and 309 last volume.) The plaintiff, he reminded the audience, was the well-known builder of Putney, Mr. F. G. Minter; the defendant, Professor Waldstein, of the University of Cambridge, his architect being Mr. F. W. Foster. The clerk of works was Mr. L. W. Green. The architects who gave evidence for the plaintiff were Mr. Wm. Woodward and Mr. F. W. Foster; and Mr. H. A. Chidgey, the quantity surveyor—these gave evidence for the plaintiff. The witnesses who gave evidence for the defendant were Mr. John Murray, Sir Alexander Stirling, and Mr. E. B. Langdon. The contract, which was in the "Institute Form" was to make alterations and additions to a country mansion in Cambridgeshire named Newton Hall. The total cost of the works, including many additions to those included in the contract, amounted to about £21,000. Mr. Woodward produced—Mr. Muir Mackenzie finds in his unassisted judgment that the authority of the architect to give the certificate dated January 20, 1911, had not been previously assumed—that the architect was, on that date, the architect for the purposes of the contract, and that he had authority to give the certificate. The defendant, however, the witnesses of January 19 operated to deprive the architect's employment and his authority to give a certificate after that

date. Mr. Mackenzie raises the question whether an architect can be effectively discharged from his office by the employer alone, and he quotes cases bearing on that point. It seems that, an architect, being the one agreed upon between the parties, cannot be discharged by the employer alone. The defendant placed reliance on Clause 3 of the Articles of Agreement, which provides for the nomination by the employer, subject to objection by the contractor, of a fresh architect in the event of the death of the one named. The contractor, by consenting to the architect for the purposes of the contract, but Mr. Mackenzie decided that that clause did not operate. There is an important matter, however, involved in this decision of Mr. Mackenzie's, and that is that an architect's certificate might not be justifiably held to include for work outside the work contemplated in the contract, and he decides that "in regard to all extra work ordered, either under the contract or in circumstances which created in the defendant a liability to pay for it, the provisions of the contract, as to payment, were to be observed, i.e., that on the one side defendant was not until the completion of the whole works liable to pay except on the certificate of the architect, and then only for the amount certified, and that, on the other side, the certificates were to include the price of all the work ordered as above mentioned." He therefore decided that the contention failed, which means that in this particular case the architect was justified in issuing certificates for work which, although not specified in the contract, was executed with the cognisance of the employer, and were therefore subject to all the conditions of the contract. Clause 13 of the contract specifically names a surveyor who is to measure and value all authorised extras and omissions, and provides for a copy of the bill to be given to the contractor. Mr. Mackenzie decides on this point that where the particular surveyor named in the contract has measured and valued additions for which the defendant was liable under the contract, or an omission properly authorised, then such measurement and valuation were decisive. There did not appear to be, to the lecturer's mind, much ground for doubt on the conditions of contract. It was in the case that builders employ a surveyor to measure and value for them the variations on the contract, it is well to bear in mind that the ultimate decision on these matters rests with the surveyor named in the contract. The authority to be exercised by a clerk of works on a building is a matter of importance to architects and builders. The case of "Minter v. Waldstein" shows that we cannot be too careful in matters relating to the contract, and that lawyers and judges put upon subjects, which we thought quite clear and simple, interpretations which may, and do, involve all parties in much trouble, anxiety, and cost. The clerk of works in this particular case gave many orders and directions which probably by his own authority, which were obeyed, as usual, by the foreman of works. Mr. Mackenzie decides that the clerk of works had no power or authority, of himself, to authorise or permit the contractor to disregard Clause 7 of the conditions of contract. The most important part of this case was the alleged defects in materials and workmanship; and, no doubt, there were such defects in the building. Mr. Mackenzie had to decide whether the architect and the clerk of works were, or the plaintiff was, responsible for such defects, and in what manner they were to be made good. The defendant complained, amongst other things, of the timber in the floors and roofs. This it was not in accordance with the contract, but was inferior or deficient, to the detriment of the stability of the building. That the floors and partitions were constructed in violation of the contract, and were defective in stability. The joinery was bad. That the roof was bad, and made of bad materials in the floors and roofs, and was badly designed and specified, and was badly constructed with bad materials. The evidence brought before Mr. Mackenzie on these

alleged defects was of the most contradictory character. Apart from the other evidence given, that of the architects giving evidence was in direct issue. On the completion of the building a set of defects was drawn up by the architect, Mr. Foster, and forwarded to the plaintiff, who not only at once agreed to send down and make good such defects, but offered to go over the building again with the architect and add to the list any other defect which might be apparent. The plaintiff, however, was not allowed to proceed with the building, and as a result of the case of "Minter v. Waldstein" was the result. As regards the description for the timber, the specification was in the somewhat antiquated form which we all know. The author deposed that he was not able to say where the timber came from, but that he had satisfied himself by examination that it was of the best quality, and as free as possible from defects. The evidence of the defendant's experts was to the effect that it was of very inferior quality, and not obtained from the places specified. On March 30, 1910, the architect wrote to the plaintiff calling his attention to the timber, stating that it was of inferior quality, and asking for its removal, but also stating that the long as the timber supplied was good, sound quality he would be satisfied, and, subsequent to this no objection was made to any timber put in by the plaintiff. Complaints were also made by the defendant as to the dimensions of the timber, and also as to the construction of certain floors on the first story. The scantlings of joists had been altered, and the spacing out of the joists was not as specified. The construction of the roofs was entirely condemned by the defendant's witnesses. Spacing out of timbers, alterations in heightening certain portions of the roofs—under the distinct directions of the architect—and various other alleged defects were the subject of complaint on the part of the defendant. The lecturer stood in his evidence that the construction of the roofs was sound and sufficient. It is important now to consider upon whose shoulders the responsibility for these serious allegations should rest, and Mr. Mackenzie decides that, so far, the clerk of works had no power or authority, of himself, to authorise or permit the contractor to disregard Clause 7 of the conditions of contract. Mr. Mackenzie quotes the case of "The London School Board v. Wall," in which the builder sought to excuse deviations from the contract, in the matter of materials and workmanship, on the ground that they had the approval of the clerk of works, and another official appointed on behalf of the building owner to look after the work. This case, in that regard, directed the jury that the clerk of works and official had no power to sanction such deviations, and that their sanction did not protect the builders. Then, as to the responsibility of the architect for the quality of the timber, and general construction of the roofs and floors: Did he by way of authorising or allowing deviations in the contract, as the plaintiff wholly or partly? In Mr. Mackenzie's opinion the authorities show that the power of the architect to order or sanction variations does not empower him to authorise departures from the terms of the contract which involved the substitution, in the whole or part of the work, of "inferior" materials and workmanship for those prescribed and charged for in the contract price, so as to prejudice the strength and stability of the building. As to other matters of complaint, Mr. Mackenzie considers that they were mainly due to the variations introduced by the architect, and the manner in which he required them to be carried out. Other alleged defects have not, he says, been established to his satisfaction. Mr. Mackenzie next deals with the defendant's attacks on the joinery as being bad in material and workmanship. Mr. Mackenzie states his opinion that as regards the "quality" of the word, the onus of proving that it was inferior and unseasoned was on the defendant, and that he has not discharged it. Mr. Mackenzie states that it is properly complained of its due to the sinking of the floors and other parts, but that the amount of joinery which was

defective construction, when supplied, is not large. Mr. Mackenzie, as regards the drainage, treats the fact that the defendant himself employed Mr. Usill (engineer to the Sanitary Protection Association) to design and superintend the carrying out by the plaintiff of the system of drainage and water supply designed by Mr. Usill, as justifying the price paid. Mr. Mackenzie finds that the plaintiff's account, less sundries amounting to £7 4s. 3d., to make good some defects. Mr. Mackenzie then deals with the numerous items of separate complaint, not included in those referred to. On the whole, the plaintiff succeeded in establishing his case as regards all these very numerous items—some of which were very trivial, one being allowed to be the price of a new door. He finds that the weakness of the floors, had no fissures, and cracks, and sinkings, and partings of joinery. Mr. Mackenzie sums up the important question of what would really be necessary to put the interior of the house into a safe and proper condition in accordance with the contract, as follows:—"The works by way of reconstruction suggested by Mr. Woodward and Mr. Ball are, Mr. Foster, and by Mr. Murray and Mr. Ball are, I dare say, all practicable; but those of Mr. Woodward, Mr. Chidgey, and probably Mr. Foster would be insufficient to remedy the defects for which the plaintiff is responsible; and those of Mr. Murray and Mr. Ball would remedy a great deal more than plaintiff is responsible for. The defendant claimed in his damages the cost in carrying out the cost of removing, storing, and bringing back his furniture during the works of repair of defects; and, further, the cost of employing professional assistance in the work of reconstruction or repair; but, on the authority of "Green v. Eales," Mr. Mackenzie disallowed these claims. Another matter of some importance in this case was with reference to what were called "extras." The defendant's contention was, in effect, that no extra works could be charged for unless authorised by writing or drawings signed by the architect, or by a written approval after having been done. The plaintiff contended, in opposition to this, that he was entitled to be paid for all the extra work done, or materials which had in fact been ordered and sanctioned by the architect, or by the clerk of works, or by the architect's deputy or assistant, or by the defendant or his wife, or had been rendered necessary in consequence of variations so ordered or sanctioned. Mr. Mackenzie found in favour of the defendant on this question. In some of the general observations on the evidence, Mr. Woodward remarked—"I cannot help expressing my regret that the plaintiff was not allowed to do what he was perfectly willing to do, and, in fact, was bound to do under Clause 17 of the contract, and that was to make good all the defects which had appeared in the house before Mr. Foster was appointed as the architect. Whether or not what he might have done in the way of making good defects would have satisfied Mr. Foster or the defendant is another matter, but at least the plaintiff should have been afforded the opportunity to try. As regards the responsibility for making good defects arising from faulty construction—the architect designed or acquiesced in by the architect, it does not seem to me probable that the result of this should be placed on the shoulders of the builder. Mr. Mackenzie has not laid down any clear and decided opinion as to this, but he rather judges each item on its merits. I have hitherto thought that, as regards defective materials and workmanship, the builder is responsible. The question of responsibility for carrying out of the designs and directions of the architect, the architect or client was responsible for bad results. H.M. Office of Works deals with this particular matter in a manner to my mind quite fair. There can be little doubt that the many actions which have been fought during the last few years have been the result of the non-responsibility troubles never before experienced by architects and builders. Our present conditions of contract do not provide in any way clearly for the settlement of these troubles, and I

becomes, day by day, more urgent that these conditions of contract shall be revised for the protection alike of client, architect, and builder.

Mr. H. D. Searles Wood, in proposing a vote of thanks to Mr. Woodward for his excellent and impartial summary of Mr. Muir Mackenzie's judgment, mentioned that the Practice Committee had under consideration the issue of a short guide to young architects as to their duties and responsibilities to clients and contractors.

Mr. H. T. Hare seconded the motion.

Mr. Maurice B. Adams remarked that a practice was growing up in the profession in regard to which, it seemed to him, some action would have to be taken ere long. He referred more particularly to the system now prevailing, both among engineers and architects, of calling specialists to design the concrete work; these specialists usually found contractors to carry out their work. The specialist undertook to be responsible for any defect which arose from any fault of his in the way of design or inadequate materials, while their contractors accepted all liability if it could be shown that there was any defect in the quality of the materials or the quantity of the materials they supplied, or any defect in the manner in which the work was carried out. With such divided responsibility, the difficulty in actual practice was to ascertain who was really responsible. The specialist and designer, when challenged by the building owner, said that if he could not find the fault, he might as well go over again; he should devise it in precisely the same way as was shown on the drawings and specifications, while the contractor contended that his interpretation of the specialist's requirements and the material he supplied were perfectly accurate, but that if it could be shown that at any point he was wrong he would let himself be taken to task. The second came within the speaker's knowledge where a structure was erected for a corporation, but it did not fulfil its purpose properly. The position he had described was taken up by the specialist and also by the contractor. Fortunately, the parties concerned agreed to share equally in the expense involved in putting matters right. The first cost was £100,000, and £100 of the outlay required, the specialist a second £100, and the contractor the remaining £100, and thus by the expenditure of £300 or so, equally shared, the defects were remedied, and the costs of litigation, which would probably have not been less than £1,500, were avoided. He suggested that architects should try to devise some system of divided responsibility for identifying errors in such cases that could be more clearly defined, so that these difficulties could be fairly and squarely met.

Mr. G. A. T. Middleton drew attention to the fact that the clauses of the specification relating to timber and steel and cement usually followed by many architects, especially those practising in the provinces, were antiquated and quite out of date—ports of origin were specified from whence no timber had been shipped for many years.

Mr. W. Henry White thought the Science and Practice Committee of the Institute should appoint a joint sub-committee to examine the usual form of specification and thoroughly revise it, and give reasonable standards of quality for materials used in various classes of work. In the case of "Minter v. Waldstein" there seemed to have been the usual arbitration clause in the conditions of contract, but the arbitrator was not so worded as to permit this costly litigation to be entered upon seemed a mystery. It should be imperatively laid down that any dispute should be settled by an arbitrator, and not allowed to go into a court of law.

The President: You know, Mr. White, it has been said that it is often cheaper to have a lawsuit than submit to arbitration.

Mr. H. A. Satchell thought architects were unjustly blamed for want of practical knowledge as to the writing of specifications, especially in regard to timber. Until the present year there was no one textbook to

give the architect authoritative information as to how to specify in the timber sections. Architects were inundated with circulars which gave no practical suggestions, and which, therefore, promptly found their way to the waste-paper basket. It would be well if a committee of the Institute would issue a pamphlet stating what were reasonable qualities of timber to demand, and what defects must be condemned. Too often the same demands were made in a close-cut competitive job as obtained in a great edifice of national importance.

In reply to the President, Mr. Woodward said old and well-seasoned wood often shrunk more under moisture than ordinary timber fresh from the docks.

Mr. Satchell added that his experience had shown that the drier timber was, the more absorbent it showed itself to be when exposed to heavy rainfall.

Mr. Saxton Snell remarked that imported timber would shrink, twist, and become affected with dry-rot when exposed to moisture, whereas well-seasoned stuff would only shrink and did not twist.

Mr. J. H. Smith pointed out that much of the litigation arising from the fact that the builder very unwisely accepted and acted upon orders or variations from the clerk of works, and did not insist upon having a written order from the architect for every alteration from the conditions of contract. The power so given to the clerks of works was a great evil, and that the architect was too busy a man to see that the work was properly carried out.

Mr. H. H. Langston thought the title of the paper, the "Newer" responsibilities of architects, was a misnomer. The responsibilities had always been the same—the fact was that the public now realised the weak points in the architect's education and position. Too often the architect did not seem to be aware of what was going on on the job, with the result that the building owner objected to pay.

At this stage of the proceedings, regrettable and happily unprecedented incident disturbed the harmony of the meeting. A well-dressed young man standing by the doorway had several times uttered coherent remarks, and the secretary had walked down to the end of the room and quietly but sternly rebuked him. The visitor now interrupted Mr. Langston, exclaiming in a loud voice: "This all comes of the Labour Members—they—" He was not suffered to further enlighten the members, for with the aid of the hall porter, Mr. MacAlister swiftly ejected him.

Mr. C. C. Geem said he agreed with Mr. Langston that the responsibilities incurred by architects as exemplified by the case so lucidly set forth by Mr. W. odward, were not "new" ones. They were as old as the Roman Law, and always had been the recognised liabilities of architects in the profession. He had himself been involved in a case like "Minter v. Waldstein" that responsibilities were disclosed which were not before known, or at any rate were not previously recognised. In this instance Mr. Minter proved, that as the builder, he did extras to the extent of £4,000, ordered by the architect or building owner. The architect gave a certificate covering the extras, and the certificate was issued after he had revoked the authority of the architect, and also that according to the conditions of the contract the work was to be first-class in character, whereas that executed was very poor work. Did the conditions of contract explicitly say that the certificates were to be given by "the architect or building owner?" No, the certificate was named in the contract and by no other? That was a point which had not been disclosed in the reports of the action, and which could only be decided by reference to the contract itself. As regarded agency, did the architect have power and authority—not only in the case cited but in ordinary practice—to order extras? If not, prima facie, an architect had no power to order extras, although the owner could give him authority. If the law were otherwise, it is obvious that it would give the architect

power, by ordering expensive extras, to pledge the building owner's credit to any extent—to ruin him, in fact. A building owner could give the architect a limited or an unlimited power to order extras; but it was for the builder to inquire before proceeding with the work as to the extent of the agency. If the architect proposed to act as the agent of the owner where he had no such authority, then the architect himself was personally liable under what was known as "Warranty of Authority." This was so even if the architect was honestly mistaken, and really thought he was authorised to order extras when no such authority had been delegated to him. As to the question of revocation of authority, where liability had been incurred by the agent, the consent of the agent was necessary for revocation. When a building owner discharged the architect, it was his duty to at once inform the builder of the fact, for the architect would not have the right to give a certificate after his discharge. As to the builder's position, he might have entered into a contract in consequence of his faith in the architect which might involve the architect's successor, and therefore it was important that the builder should be informed of the architect's dismissal. If the builder did nothing when so informed, it would be held that he acquiesced in the fresh appointment, and hence it was prudent for the builder, if he knew nothing as to the ways of the newly appointed architect, to protest at once against his appointment.

The President, in summing up the discussion, said the paper was full of puzzling points. For himself he should like to forget, if possible, this very unfortunate case. So far as it was possible, it was much more advisable, when disputes arose, to persuade the building owner and builder to give and take, than to resort to litigation and litigation. Mr. Seales Wood and Mr. Woodard made a very practical suggestion, that a Committee of the Institute should prepare a pamphlet showing the powers and responsibilities of the architect; but there was a great danger to the young architect in endeavouring to act upon what he imagined to be his rights and duties, as there was a case where a little learning was assuredly a dangerous thing.

Mr. Woodard replied to the note of thanks, which was passed by acclamation. He believed, notwithstanding what Mr. Geen had just said, that the architect as agent had power to pledge his client's credit to practically any amount. All turned, when a dispute arose, as to whether the variation in the contract was for the benefit of the structure. The danger in the extra work was the ambiguous form in which it was done. If client and builder were informed in writing there would be little opportunity for mistakes. But it was the variation from the conditions that constituted the difficulty in every disputed builder's account. Orders were given by the clerk of works were obeyed every day by the builder, as they all knew; but the giving of such orders showed that the architect was too free and easy, too slapdash in his methods of working, and he took the opportunity of warning all young architects of the risks of such practices. Mr. Seales Wood's suggestion for the revising of the medieval cut-and-dried specifications was a good and a practical one. For himself, he did not know where timber came from, nor did he care; if that supplied agreed in quality with that he specified, he let it go. The remarks of Mr. Maurice Adams deserved the serious attention of architects; the several responsibilities of specialist and sub-contractor for ferro-concrete, and in the future had to be carefully defined. He would only say that, in his experience, German and Belgian cement was very inferior to that of English manufacture, and they ought in this material to specify the place of origin, and see that such was supplied. As to the relative merits of arbitration versus litigation, his experience showed that proceedings before arbitrators were less costly, and his judgment was more in favour of England. A judge was apt to strictly construe the clauses in the specification, without inquiring into, or professing to ascertain, what were the requirements of the case.

PROFESSOR PRIOR ON THE VALUE OF A UNIVERSITY ARCHITECTURAL SCHOOL.

In his inaugural lecture as Slade Professor at Cambridge, Mr. Edward S. Prior, F.R.I.B.A., treated upon the organisation of the study of art by a university. Art had, he remarked, two sides—the recipient and the executive, and a university had the opportunity of training the public as well as the artist.

Archæology and art must be coupled together, and a right understanding of artistic value should be taken account of in art study. Professor Prior also pointed to what Cambridge has undertaken in its school of Architecture Studies. The student, before establishing his claim as a specialist for architecture, should show that he has interest in the practical forms of art, and has the instinct of handicraft. The power of the artist is a distinct physical idiosyncrasy—a predisposition necessary for training in art, and it is cruelty to force it on the unfit.

He should, secondly, give proof that he has the capacity for understanding the methods of a practising artist. Architectural training is no good as a refuge for the mentally incompetent. When the student understands himself as an artist, the history of art, and historic archæology, become for him a new thing. The achievements of the past are studied, not as a story, but as an exercise. Forms and handling teach him before him in their evolution, and he tests their achievement by his own experience. The programme of an archæological and architectural school must be closely condensed for University purposes, but the programme could be regulated by strictly keeping to the principles of practical art instruction and specialising to this end in the direction of the construction of art. The only just education of the artist, at the start and all through, is making him competent to meet present-day conditions with the present-day materials of art. He must be equipped from the beginning to take those conditions seriously and to experiment in them. The student of art must start with his handicraft. He must draw and understand what his line means. He must model so as to understand how things are constituted. He must colour and know what tone and shade express. There is wanted in Cambridge continuation studies in archæology and architecture, in which students with the bent of investigation may obtain the habits of observation and comparison on which archæological discovery rest. There are needed special classes, for whose needs a school of archæology and architectural studies long ago to have been instituted. The Cambridge curriculum of theology sends out to nearly half the parishes of England incumbents and curates. Many come immediately into touch with some of the finest architecture, and some of the most valuable records of art, that our island holds. Our ancient shrines and parish churches come under the care of Cambridge graduates who often obtain what is practically the power of ownership to do what they will with the ancient religious art. With them lies often the decision whether the genius of ancient English art shall be preserved or destroyed. A knowledge of what is in their hands to guard and secure would seem a part of their education. The tragedy has happened, that with the best intentions, and often with pathetic exertions to understand, clerical guardians of priceless treasures have been so ignorant (despite a University education), so untrained in the ideas of religious art, that they have wiped out in the last century a very large part of the religious art and religious antiquities that a few years ago our churches everywhere possessed. While there are still art treasures for the Church to keep, would it not be to the advantage of the clerical vocation if clerical students took a course of historical English architecture, and understood what this meant in churches? A school of art preservation in connection with clerical training would also have its proper home in Cambridge.

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English school have in the last 100 years been allowed to show their art in our Cathedrals and churches. Would it not be an advantage for every candidate for orders to be given the opportunity of associating with and understanding the artist—at any rate to the extent of taking at its worth what in our churches is often degraded stuff?

BUILDING IN EARTHQUAKE COUNTRIES.*

We have more than once mentioned this useful volume, which was first published just three years since, when the then recent disasters in Calabria and Sicily had stirred up deeply the sense of the terrible losses always more or less prevalent in localities visited by such upheavals. We are glad it has been translated into English, because, although here at home we are comparatively unfamiliar with seismic catastrophes, some of us are called upon, in the various parts of the Empire, to provide against them, and glad of the opportunity that are the fruit of practical knowledge.

As yet, as Sig. Montel remarks, it is only by way of gross approximation that we have come to apprehend the mode of propagation of the seismic forces across the earth in the same manner as across an elastic body. About the only thing we really know is that there are no rotary or vortical earthquakes. Whether their surface waves impart also a vertical movement as well as a horizontal one, is matter of controversy. Omori, the greatest Japanese authority, denies the vertical motion; but most seismologists, and the physicists Lord Kelvin and Lord Rayleigh, have taken the other view. Probably it exists, but is slight and difficult to observe. The main question we are interested in is, of course, what materials are best calculated to endure the shocks, and how they should be best employed. Timber is very suitable, but its danger from fire is a grave one, when the conflagration that so often follows an earthquake are borne in mind. Iron is good—or, rather, would be if it also did not so frequently succumb to the action of fire, did not corrode, and were not so expensive. Bricks and masonry are better, if proper rules of construction are observed.

The Japanese regulations for the construction of an earthquake-proof house are given at length, with copious diagrams, and also the experiments conducted in Japan as regards the resistance of brick columns. Chapter XI, on the subject of masonry, gives valuable calculations of brick columns and walls and walls of reinforced concrete. Free-wall houses and monolithic houses are next dealt with, and in Chapter XI, we get some useful notes on masonry construction.

On the whole, Sig. Montel's preference is for a building of strictly monolithic construction, avoiding all bold and jutting profiles, and extra weight in the upper parts. Especially he counsels the avoidance of reinforced concrete framework, filled up with masonry. Such mixed construction, he says, is far too liable to disintegration under the influence of seismic forces to be worth recommending. We are inclined to agree with him. Even in their absence we sometimes doubt the stability of some of the structures of that sort we see going up here at home.

Mr. H. E. Hoper, Local Government Board Inspector, held an Requisition at Bicester on Friday into an application of the corporation to borrow £56,756 for electricity purposes.

The formal opening ceremony of the Sunderland Children's Hospital, which stands off the Durham-road, near the Barnes Park, Sunderland, was performed on Friday afternoon by the Earl of Durham. The total cost of the hospital, including the ground, building, and equipments, has been £209,948 ss. 10d., all of which has been raised. The building has been erected by Mr. Joseph Huntley, contractor, from plans prepared by Messrs. W. and T. R. Milburn, architects, of Sunderland.

*Building Structures in Earthquake Countries. By Sig. ALFREDO MONTEL. Translated from the Italian, with Additions by the Author. London, Charles Griffin and Co., Ltd. 8s. 6d.

CURRENTE CALAMO.

We cannot say that anything was added to our comprehension of the "Newer Responsibilities of Architects" by the discussion at the Institute on Monday night. Not a single speaker seemed to grasp the real issues, which we tried to make clear in our numbers of April 26, March 22, and Jan. 5 last. Once more one had to listen about the verdicts of juries, and the judgments of referees on special facts, as if these made binding precedents. Once again much was said of devising means to fix the exact responsibility of architects and specialists in the same apparent ignorance of the law of principal and agent, and of the fact that printed forms of contract are not sacred things, and above all legal rules. Mr. Harrison, the solicitor to the Institute, did not speak on Monday. Probably he thinks, as we do, that at the meeting on April 15 he had told its members clearly enough where they were and what they should do. Perhaps we may once more try to do that—not that any visible results of our previous efforts so far are encouraging!

The eve of the Derby, when a count out is pretty certain tolerably early, found the economists of the House of Commons in full feather, and poor Mr. Wedgwood Benn had a rough time of it on Tuesday. The summer villa on the Bosphorus for the British Ambassador at Constantinople is, no doubt, indispensable to the maintenance of British dignity at Stamboul; but—possibly not for his reasons—we should back Lord Alexander Thynne's protest, and spend the money here at home on housing. Nearly everybody has a statue nowadays, and "Dear Old Charlie" would quite as well ornament Piccadilly as "Peter Pan" does Kensington Gardens. That money would be saved by dispersing the great public buildings is, doubtless, true, and when Lord Alexander Thynne is an angel, or wins the Paris prize as a self-propelled "aviette," there will be no objection to building even as far away as Jerusalem or Madagascar; but, in the meantime, concentration seems worth the money. For the rest, Mr. Burdett Coutts' heavy-father sort of criticism of the "enormous mass" of masonry of the King Edward memorial, and Mr. Norman Craig's doubtless sympathetic interest in the new ladders of the House helped to kill time till the count out could be managed, and favoured the leisure of members anxious to square their betting-books.

The report of the Departmental Committee on the Science Museum and the Geological Museum, issued on June 4 as a White Paper, shows how buildings may be designed which will provide for immediate developments, but also facilitate arrangements for meeting possible requirements of the future. A sketch plan of the site is given, with an enlarged drawing of the eastern portion, which would be the first erected. This plan shows the position of the proposed new building for the Geological Survey and Museum—a building facing Exhibition-road, and forming a part of the ultimate eastward extension of the Natural History Museum, while communicating at the same time by connecting galleries with the adjacent new buildings for the Science Museum. The committee report with full confidence as to the development of the museums, and refer to some Continental museums which correspond closely in aim

with the Science Museum, notably the Museum of the Conservatoire des Arts et Métiers in Paris and the Technisches Museum für Industrie und Gewerbe at Vienna.

State portraits of royalties are seldom artistic successes, and Sir Luke Fildes's picture of the King, which was placed in the Royal Academy on Monday in the space reserved for it on the left of Mr. Bacon's Coronation picture in Room III., is not a happy exception. The likeness is good enough, but the King's face is serious, almost to the point of nervous constraint. On the whole, the artist's task should have been an easier one than in the case of his portrait of King Edward ten years ago. The dark blue of King George's naval uniform does not clash with the regal crimson mantle, as the scarlet field-marshal's coat of his father did. But King Edward's picture was the better one. The deep yellow of the curtain throws up King George's figure too vividly, and the rendering of the train of the crimson mantle is rather slovenly. Sympathy, however, with any artist who has to invest with human interest subjects clothed in the uniform of 20th-century European royalty or officialdom must disarm all serious criticism.

Bristol is one of the growing centres of human life and enterprise of the kingdom, and has so well kept abreast of its responsibilities in other matters that it is hard to believe it will not ere long provide itself with adequate municipal buildings. There must be considerable wastage of time and money in having so many of the administrative departments scattered over the city. The docks and city engineer's departments occupy separate buildings in Queen-square, the dock engineer's offices are at Cumberland Basin, the health department is housed in Prince-street, and the electricity department at the Exchange. The advisability of securing some central site and adopting a comprehensive scheme of municipal buildings has been advocated again and again, committees have been appointed, and recommendations submitted, but there the matter has ended, and the delay seems to have increased the difficulty, because some of the best sites suggested as suitable for the purpose are no longer available. Visitors are certainly not favourably impressed when the Council House is pointed out to them as the seat of Bristol's municipal government, and the want of an imposing building is emphasised on important occasions, such as the forthcoming Royal visit.

Everyone must have laughed at the industrious pertinacity with which visitors collect samples at exhibitions. There is a man in our road who proudly exhibits an "irregular structure" in his back garden which he boasts from floor to roof was built with samples obtained at a building exhibition, and with materials for which some of the samples were exchanged with friends. Sometimes you can manage the exchanges at the exhibition, on the same principle by which the baker manages to get his own Sunday joint for nothing, especially if you plead in the cause of piety or charity. At a recent show of the sort in Trient, in the South Tyrol, according to a story in the *Manchester Guardian*, an exhibition of steps and ladders formed the most striking feature. A young Capuchin monk stood looking at the ladders with longing eyes. His monastery wanted a tall ladder badly; but times were

bad, and offerings scanty. Suddenly a brilliant idea struck him. He went up to the owner of the smallest ladders at the bottom of the row, and meekly asked him whether he could not present him with a small pair of steps for the monastery. The man was a good Christian, the article was of small value, so he readily agreed.

The friar took the ladder and blessed the generous giver; but, instead of going home, went to another stall, where the exhibitor had to dispose of larger ladders. Would he not, in the name of the Blessed Virgin, exchange the smaller ladder for a somewhat larger one? He offered the request so humbly and so sweetly that the owner did not the heart to refuse him, and the monk obtained a ladder which was taller by two rungs than the first. Again he took the ladder offering and went a few steps further to the owner of still larger ladders, and again repeated his request for a slightly larger one, in exchange for the one he had, and again he carried off the trophy. In this way he went up the whole line of ladders, and when he reached the top his object was achieved. He got the tallest ladder in the market, and returned to the monastery joyous that he had deserved well of the famous mendicant order to which he belonged.

Congratulations to Mr. Thomas Hardy on his seventy-second birthday, which he attained last Sunday, have quickly followed those tendered on his recent selection for the award of its gold medal by the Royal Society of Literature. It is just fifty years ago but one since Mr. Hardy was a prize-winner at the R.I.B.A. If the *Westminster Gazette's* reminiscences this week are authentic of him it will never be recorded—

"My only books
Were women's loaves,
And folly's all they've taught me."

For, according to our contemporary, his earliest attempts at a scribe consisted in the inditing of their love-letters to their soldier-sweethearts in India for the girls of his native village. Most enviable of all apprenticeships to the gentle art of fiction, surely!

Additions in the form of classrooms, etc., are being carried out at the Fernie Park Baptist Church and Schools, Hornsey, N., by Messrs. Battley, Sons, and Holmes, of 21, Old Kent-road, S.E., the contract amount being £1,311. The architects are Messrs. George Baines and Son, 5, Clement's-lane, Strand, W.C.

According to the *Montreal Daily Witness* of May 2, the plans of the new City Hall and annex have been approved by the board of council at the Castle. Among these was a silver-mounted dressing-case presented by the staff of his Majesty's Office of Works, the Lord Chamberlain's Department, contractors, workmen, and friends at the Castle. Mr. Nutt, in acknowledging the present, said it had been stated by the ancient sages that "the tree of deepest root is found least willing to quit the ground," and he felt that after over 44 years on the Castle soil his roots had entwined themselves not only in the soil, but in the hearts of very many kind friends, and he felt acutely the wrench that old age had forced upon him. Mr. Nutt also received a gift from the Windsor Castle police, in the form of a silver cigarette case.

On his retirement from the position of resident architect at Windsor Castle, Mr. A. Y. Nutt, M.V.O., has received a number of presentations from various departments as an acknowledgment of his forty-four years' service at the Castle. Among these was a silver-mounted dressing-case presented by the staff of his Majesty's Office of Works, the Lord Chamberlain's Department, contractors, workmen, and friends at the Castle. Mr. Nutt, in acknowledging the present, said it had been stated by the ancient sages that "the tree of deepest root is found least willing to quit the ground," and he felt that after over 44 years on the Castle soil his roots had entwined themselves not only in the soil, but in the hearts of very many kind friends, and he felt acutely the wrench that old age had forced upon him. Mr. Nutt also received a gift from the Windsor Castle police, in the form of a silver cigarette case.

to this thrust through the bracing into the material will be transmitted through the haunches of what may be termed a series of arches, which will lie between planes which have been assumed to be approximately parallel to the planes of repose. These will, in turn, resist the tendency of the wedge, of which they are a part, to slide along the plane of rupture toward the toe, the condition of stability being the tightness of the bracing holding it in place. It may be added, in parentheses, however, that, failing to make the sheoting and bracing absolutely tight, it will be made so automatically by the gradual settling down of the material, providing the settlement does not come with sufficient force to cause shock or collapse. A series of independent, dependent, and finally interdependent arches or sections of arches are thus formed, whose lines of thrust, as stated, is assumed to be along the planes of repose, and the measure of whose thrust is proportional to the cotangent of this angle of repose, and whose area lies between the vertical and a plane bisecting the angle between the vertical and the plane of repose. That is, let—

ϕ = the angle of repose, and $90^\circ - \phi = \beta$ = the angle between vertical and plane of rupture, and h = the height. Then—

$$\text{area} = A = h^2 \times \frac{1}{2} \cot \phi \tan \beta, \beta = 90^\circ - 2 \text{ tang. } \phi.$$

Its thrust at any point—

$$= T = A W \cot \phi,$$

W being wt. per cubic foot of material, and a being area of material at any point causing thrust T . Or the thrust over entire area—

$$= T = A W \cot \phi = h^2 \cot \phi \tan \beta \frac{1}{2}$$

Obviously, if this thrust is due to a series of arches, its point of application will be through its centre of gravity, which will be two-thirds of h above the toe, and the moment per lineal foot tending to overturn a wall or structure will be

$$M = T \times \frac{1}{2} h = h^3 \frac{1}{2} \cot \phi \tan \beta.$$

So far, consideration has been given only to those materials normally dry—i.e., as ordinarily found under normal conditions, where not saturated or submerged, and commonly called dry ground. Saturated materials will now be taken up under the head of Wet Ground, and will include only ground which is temporarily or permanently submerged, so that the water therein or the ground itself is under hydrostatic pressure. For a clear understanding of materials in this class three subdivisions will be made: (a) Those materials in which the voids are filled, such as gravel, gravel and sand, or sand, in which there is not a large percentage of soft material. Material of this class may be called "firm ground." (b) Those materials of which the voids are filled with fine material, largely in suspension in the water, such as sands mixed with silt or clay. This may be called "semi-aqueous material." (c) Those materials, such as fine silt, very soft clay, very wet, freshly-mixed concrete or mud, or any material which flows under normal pressure. These may be called "aqueous materials." Of these materials the last, or aqueous, may be left out of consideration, as the laws applicable to them are obviously the same as those belonging to water itself. In this connection it should be noted that the hydrostatic pressures resulting from these materials should be figured on the specific gravity of the carrying fluid and not on weight—that is, for instance, wet concrete will not give a hydrostatic pressure due to the weight of 140lb., but of 62½lb. per cubic foot, due to the fact that the solid particles in suspension derive buoyancy from the presence of the water until they settle down and cease to exert pressure, except as a solid. Consideration of Class A materials, or firm ground, will now be taken up, and may lead to a better understanding of the conditions governing those materials of Class B. In connection with the sand arch experiments first described, an additional experiment was made. A box of 9in. cube was used, similar to that described, with false bottom, except that the front was made of glass. This box was filled with sand to a depth of about 5in.,

the washers keyed down tight, to insure that the false bottom was pressed up tight against the open bottom of the box. Water was then poured into the box, and even after saturation was complete, as observed through the glass slide, there was no failure or collapse when the box was lifted, with the water standing as high as 2in. above the sand. This demonstrated conclusively that in small volume at least the pressure of water does not destroy the arching properties of sand. In the second experiment made, the apparatus was complete, as described, the 9in. in diameter and 18in. high, whose top contained a collar through which went a piston some 2½in. long and 3in. in diameter. Connected to this chamber was a nipple connecting by copper hydraulic pipe to a pressure-pump and gauge. The piston was first lifted and held about 6in. off the bottom; water was pumped into the chamber, and the pressure required to lift the piston further was noted. This was repeated and was found to be uniform. A table standing on 8in. legs, with a hole through which the piston fitted loosely, was next put into the chamber. This table contained pipes, so that water could circulate from above the table to below it, and the sand above the table around it was removed to a depth of some 6in. It is readily seen that the area of piston against which the water impounded was not reduced, but that the friction of the sand bearing on the piston could be measured if appreciable. As the piston was a polished surface, it was found that this friction was negligible—i.e., in a gauge registering pounds only it could not be measured. The table was then removed and the bottom filled with sand to a depth of 6in., the piston put in place bearing on the sand, and 6in. more sand put in surrounding the piston. It is seen that, neglecting friction, if the area of the piston's base was not reduced by its contact with the sand, it would rise under the same pressure as that required to raise it in clear water. A series of tests proved, however, that it required approximately double the pressure to start the piston from that required to continue to raise it after it started, due to the fact that, on the formation of a water-pocket between the piston's bottom and the sand, the pressure of the water on the full area of the piston was brought to bear, whereas when in contact with the sand, its area was reduced by the proportion of the contact. It is believed that an experiment along these lines on a much larger scale will be of great value in clearing up a mooted question among engineers. It must be admitted, even in the case of the smaller experiment, however, that one of two conditions must have obtained—either the water, through numerous minute channels, was in contact with the base of the piston, in which case fluctuations of pressure would immediately be transmitted from the clear water at the top to the base of the piston, and, in fact, that the piston did not rise until double the pressure had been exerted, thus showing a reduced area; or, on the other hand, it must be admitted that there was no continuous contact of water, and that "leads" had formed, the water opened before pressure could be transmitted to the piston's bottom. The latter be true in so small a chamber, it must undoubtedly be true in practice, that a submerged structure is not under buoyant pressure because of the fact that the channels of water leading from the clear water to the structure are not continuously in contact. The writer prefers to believe that the first condition is true, and that numerous channels lead from the structure to the clear water, these channels being independent in a measure of the so-called columns of sand in between. For instance, if a chamber be taken containing a piston whose specific gravity is less than that of water by the smallest fraction, and it is assumed that its polished bottom is in contact with the sand, and that the channels of water, of course, be buoyant when the chamber is flooded. If again, a series of smaller rods, with polished tops, perfectly flush with each other, be wedged into a pipe, and if a piston, as described, be set on them, it will not rise because the buoyant area is not sufficient to cause it to do so. The writer holds that the

same reasoning is true if sand, packed or wedged into the bottom of the pipe, be substituted for the rods, and he believes that the experiments noted have shown that a piston or structure resting on or buried in sand has what may be termed its buoyant area reduced by reason of that contact. Some reasons for this assumption, aside from the experiments, will be noted later. As to the application of this theory to practical conditions, the pressure over the roof of a subaqueous tunnel in firm ground, or Class A materials, will first be noted. In such conditions there will undoubtedly be two classes of pressure—one wholly aqueous or hydrostatic, and the other due to the solid material. If it is assumed, for a better understanding, that the material is coarse sand with a percentage of voids x , with a normal angle of repose, it should first be noted that material of this character will have its angle of repose increased by reason of its submergence, and for safety it may be assumed that it is 50 per cent. greater than when normally dry. The thickness of solid material at which the arching properties would be effective would be

$$L = 2 \text{ tang. } \alpha$$

above the springing line of a tunnel if circular, or above the roof if flat, L being the greatest outside diameter or width of roof, and other factors being as follows:

$$\phi = \text{angle of repose,}$$

$$\alpha = \phi + 90^\circ - \phi$$

Assuming then a depth of material d as equal to or greater than

$$L = 2 \text{ tang. } \alpha,$$

the conclusion is that all solid material at and above that elevation is carried by its own arch, and as well the pressure of water on all material, which, by reason of continuous contact to the tunnel, is assumed to be the equivalent of a number of solid columns. Between these columns the water pressure acts independently—i.e., for the weight per lineal foot (W p. ft.) on a tunnel of outside width (L), we have, assuming a depth of water (D) and a depth of material (d) of the class or classes under the conditions noted, W being the normal weight per cubic foot of the solid material and 62½lb. Being the weight of water. Assuming a percentage of voids in the material x , as above: then

$$W_p = \frac{1}{2} L \times L \times 2 \text{ tang. } \alpha + 62.5 D \times L$$

or $W_p = W \times L^2 \times 2 \text{ tang. } \alpha + 62.5 D \times L$, the condition as noted above, where $d \geq L = 2 \text{ tang. } \alpha$. Where—

$$d < L = 2 \text{ tang. } \alpha,$$

$$W_p = W L d + 62.5 L (D - d + \alpha d)$$

That is, the assumed solid materials bearing on the tunnel transmit to the tunnel the added weight of the water bearing on them, but not the weight of the water which they displace, since they cannot bear on the tunnel at the same time as the water. If it were assumed that the excess weight of the columns over that of the displaced water bore on the tunnel, then

$$W_p = W - 62.5 L d + 62.5 L D.$$

It is seen from the above reasoning that if a tunnel of a width of 20ft. outside with 50ft. of covering of the class or class of roof is as great as one in which the covering is 40ft., assuming equal depths of water to the roof. Comparing the last two formulae, we find in a tunnel with

$$s = 40 \text{ per cent.}$$

$$L = 20\text{ft.}$$

$$d = 40\text{ft.}$$

$$D = 50\text{ft.}$$

$$W = 120\text{lb. per foot,}$$

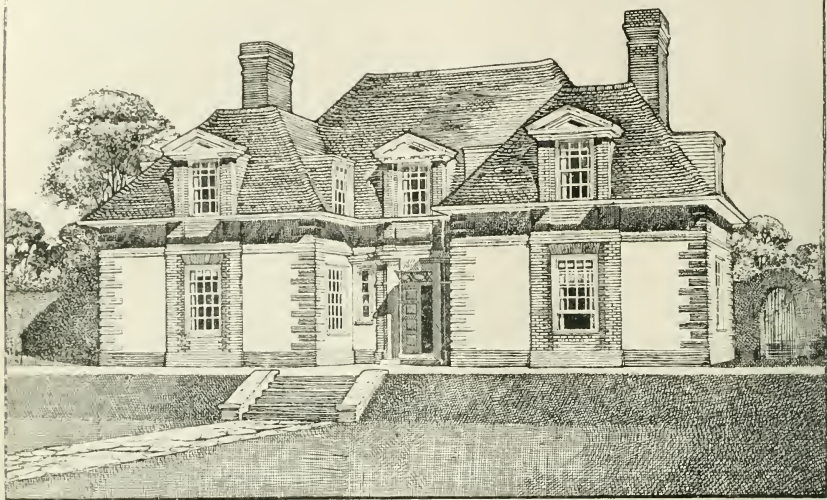
then— $W_p = 162,500\text{lb.}$

or a little over 4 tons per square foot, while in the second instance,

$$W_p = 142,500\text{lb.}$$

or a little over 3½ tons. The writer prefers to consider that the former instance is more in accord with the correct theory and safer in practice. As to the pressure against a sheeted face, coffer-dam, or retaining wall, here again there are independent pressures to consider. First calculate the pressure of the solid material against a wall, as noted,

HOUSE AT HARPENDEN FOR ARNOLD H. HOOLE, Esq.



Mr. J. E. DIXON SPAIN, Architect.

bearing in mind that such material, when submerged, will stand at a steeper angle of repose, and, therefore, the thrust due to the pressure of this material is lessened by its submergence; then calculate the water pressure separately, assuming that it acts in the same way as does water alone, except that it is diminished by 60 per cent. if 40 per cent. voids are assumed. This should not be taken to mean that the pressure at any point is only 40 per cent. of what it normally would be, but that the area over which the pressure is distributed is only 40 per cent. of the whole. The sum of these two independent pressures constitutes the total pressure against dam or structure, and, with proper qualifications as already noted, the pressure against any given point.

(To be concluded.)

HOUSE AT HARPENDEN.

This is a small house, with external walls in stone, brickwork with cavity, and externally plastered. Dressings and quoins are in red bricks, and the roof-covering is of hand-made tiles. Mr. J. E. Dixon Spain is the architect, and his drawing herewith reproduced hangs this year in the Royal Academy. By a piece of carelessness this description appeared last week without the illustration, which we now give.

CONCRETE COSTS.*

This is an English edition of a most voluminous treatise of over 700 pages. Its distinctive feature is that the information given is the result of practical observation. For three years as gang-boss and foreman in a Philadelphia steel company's shop, one of the authors had a continuous struggle with

* Concrete Costs. Tables and Recommendations for Estimating the Time and Cost of Labour Operations in Concrete Constructions, and for Introducing Economical Methods of Management. By FREDERICK W. TAYLOR, M.E., Sc.D., and SANFORD E. THOMPSON, S.B. London: Chapman and Hall, Ltd.

his men while trying to get them to do a proper day's work under the old piecework system. Over and over again it was brought home to him that neither he nor the men knew how long it really ought to take to do a given job. It was the interest of the men to "go slow," and still convince the boss they were doing their best; while it was the determination of the foreman to make them do better. Hence constant strife and bitter and antagonistic relations.

Consequently, Mr. Taylor set to work to find the time a first-class man should take to make each of the elementary movements into which all work may be subdivided. Adopting these "unit times," as they were called, the men were shown they could work far more efficiently than before, with but little greater effort, and earn a bonus of thirty per cent. or more on their wages. Strife ceased, and the men co-operated heartily. Such success followed that in 1894 Mr. Taylor and Mr. Thompson joined hands in an effort to apply the principle to the building trades. It has taken them seventeen years to get this book out. How far the system would succeed here we should not like to say; but the book is well worth study, the more so because it covers cost generally, and abounds in hints that any practical man can adapt, even if he does not adopt them entirely.

INTERNATIONAL EXHIBITION OF THE BUILDING TRADES, MAY TO NOVEMBER, LEIPZIG, 1913.

In 1913—a year replete with historical memories to Leipzig, and in which the majestic structure of the Monument of the Battle of Nations will be dedicated, in the presence of his Majesty the Emperor and his Majesty the King of Saxony—a peaceful contest will take place on the area where, a hundred years ago, the mighty struggle with the great Corsican occurred. The civilized nations will meet in a Universal Exhibition of the Building Trades and Homes. This

exhibition is under the protectorate of his Majesty King Friedrich August of Saxony. The Exhibition will be divided into the following divisions, supplemented by scientific lectures and moving pictures:—

Section I.—Architecture in eight: Towns and settlements; underground and over-ground construction; inner decoration; technical art trade; homes and their decoration; architectural painting and sculpture; gardens and parks; cemeteries and their ornamentation; monuments and their care; conservation, etc. In addition, thirty-three subdivisions.

Section II.—Literature of the building trade; trade schools; office furniture. Three groups.

Section III.—Building materials—their manufacture and use. Twenty groups, comprising stone, wood, building ceramics, art stone, cement goods, concrete and reinforced concrete. Heating plants, lighting plants, etc. Furthermore, twenty-four subdivisions.

Section IV.—Machines, tools, and implements for building purposes. Five groups, with two subdivisions.

Section V.—Real estate transactions; information and insurance; bookkeeping, etc. Five groups.

Section VI.—Hygiene in the home, factory, and street; protection and welfare of workmen; protection against fire. Six groups.

Section VII.—Gymnastics, games, and sport.

Section VIII.—Testing of building material; lectures on the trades.

The cottage settlement at Leipzig Marienbrunn, which is a permanent institution, is a garden town composed of eighty-five solidly-built, tenanted houses, about 400 metres distant from the Exhibition grounds. The City of Leipzig will have a display of the evolution of municipal building in a separate pavilion. The Saxon State is also contemplating an exhibition of State architecture in a separate palace. Although the Exhibition will not be opened for a year, the

proportions of the Machine Hall have had to be enlarged several times, the space placed at the disposal of the machine industry not sufficing. Considerable space—in fact, up to 5,000 square metres—has been acquired by several leading firms. Contracts for space yielding 350,000 marks in rent have been made up to date.

Negotiations are now in progress with foreign countries, promising extensive participation on their part at the Exhibition. Austria and Italy are manifesting uncommon interest; an organisation for the Exhibition is already being formed, and is seriously at work. Roumanian manufacturers have obtained 1,000 square metres of surface at the International Exhibition of the Building Trades at Leipzig, 1913. The enterprisers purpose the erection of a moving-picture show displaying the extraction of raw material and its treatment in Roumania, as also of Roumanian industrial products. In fact, giving a clear idea of the development of industry in Roumania. During the intermissions, pictures of Roumanian life are to be produced. There is likewise to be a collective exhibition of the products of Roumanian industries and crafts. Numerous congresses of leading economic and trade associations will meet in Leipzig in 1913. An immense number of strangers are expected in Leipzig during the time of the Exhibition. In addition to the large number of regular visitors to the Leipzig Fair, there will be a large attendance at the General German Athletic Meet, which takes place in Leipzig in the summer of 1913. Furthermore, hundreds of thousands will visit the city to be present at the unveiling of the Monument of the Battle of Nations. A whole week of celebration, including a historical procession dedicated to the memory of 1913, has been arranged.

The grounds cover an area of approximately 400,000 square metres. In the axis of the broad representation street of the Exhibition—the prolongation of the beautiful "Street of the 18th October" which is to be built by the City of Leipzig, and will lead to the monument—there is to be erected a bridge over the cutting of the Leipzig-Hof communication railway. This bridge is to be a permanent structure. The substructure is to be built at the expense of the city; the superstructure, which is to be much ornamented and of superior architecture, at the expense of the Exhibition. In addition, there will be a foot-bridge leading from the Exhibition side of the cutting to the park. This park, for recreation and amusement, will occupy an area of about 48,000 square metres.

Just at the right of the entrance in Reitzenhainer-strasse, the numerous buildings of Old Leipzig, representing the city at the time of the War of Liberation, will be erected. The old gates and fortresses will rise once more, the old Pleisensburg, the University Church as it was before its renovation, and many other buildings, streets, and courts. From this entrance an avenue of two hundred large, newly-planted trees will lead towards the city, and from the administration building of the Exhibition to the principal street, and crossing it to the extreme west portion of the grounds. The principal entrance of the Exhibition, on the side nearest the city, which is to be used chiefly for representative purposes, is in the direction of the "Street of the 18th October." Its portals will afford a fine view of the grounds, and across the bridge to the monument which finishes the picture.

The parish institute at Dersingham, North-West Norfolk, was opened last week. It is built of cast stone, with red-brick dressings, and cost £800. Mr. W. Jarvis, of Lynn, was the architect, and the builders were Messrs. Chambers, of Dersingham.

At the monthly meeting of the Wallasey Town Council yesterday (Thursday), the resolutions of the special works committee, that the town clerk be instructed to apply to the Local Government Board for sanction to use the North Meade site for purposes of a town-hall, and to borrow £80,000 for the total cost of the proposed new town-hall, were confirmed.

OBITUARY.

We regret exceedingly to announce the death of Mr. Frederick Ingle, so long associated with the firm of Messrs. Dennett and Ingle, the pioneers of the famous "Dennett arch." Mr. Ingle died, after a brief illness, on the 30th ult., at his country home and birthplace, Colchester, near Grantham. His age was seventy-three. We believe in early life he was with the late Mr. T. C. Hine, F.S.A., architect, of Nottingham, and then joined the firm of Messrs. Robert Dennett and Co., of the same city. His active co-operation in London did much to establish the reputation of the system of construction introduced by the firm, which originally in Craven-street, and then in Whitehall, has of recent years had its London offices at 24, Queen Anne's Gate. Mr. Ingle never married, but few men have been as widely esteemed, and none more deservedly so, and by all who knew him his death will be very sincerely regretted.

The death took place at Conway on Wednesday of Mr. Clarence Whaité, a well-known member of the Manchester Academy of Fine Arts and of the Royal Cambrian Academy. Mr. Whaité was eighty-four years of age, and was the oldest member of the Royal Society of Water-Colour Painters. He was a native of Manchester, and was educated at the Grammar School and School of Design of that city, at Lee's Royal School, Newnham-street, W. and at the Royal Academy Schools. Most of his later days were spent in North Wales, where the romantic scenery suited his temperament. Mr. Whaité almost alone continued the Turner tradition, and up to the end his work retained its masterly craftsmanship. Turner's influence at its best is seen in "A Buttrass of Snigdon" and "Just around the loop," both in the Manchester City Art Gallery, where also is shown a bust of him by Mr. John Cassidy.

Widespread regret will be felt by members of the architectural profession at the loss sustained by the death at Heidelberg, Germany, on Sunday last, at the age of sixty-six years, of Mr. Daniel Hudson Burnham, M.A., Ph.D., LL.D., of Chicago, the chairman of the American Commission of Fine Arts and one of the leading architects in America. Mr. Burnham, who was born in 1846 at Henderson, New York, was a student of architecture at Chicago, to which city his parents had removed when he was nine years of age. He established in 1872 the firm of Burnham and Root, Chicago, and in the course of their career designed many of the best-known buildings in that city and elsewhere. In Chicago itself Messrs. Burnham and Root designed and carried out the Temple, the Masonic Temple, the Illinois Trust Bank, the First National Bank, the Railway Exchange, the Great Northern Hotel, Marshall Field's retail store, and the Ashland, Fisher, Reliance, Rookery, and Stewart buildings. Mr. Burnham was chief architect and director of works at the Chicago Exhibition, 1889 to 1893, and chairman of the national committee for beautifying Washington and Cleveland. He also planned the cities of Manila, Baguio, and San Francisco. Mr. Burnham was a Fellow of the American Institute of Architects, and served as president of that body in 1894. Eighteen months ago he was elected an honorary corresponding member of the Royal Institute of British Architects, just after the Town Planning Conference at Conduit-street, at which it will be recollected he presided over one of the sections and delivered, in deliberate tones and in an impressive manner, an address on "Human Progress and Promise"; he also responded in a felicitous speech for "The Guests" at the Conference dinner given at the Hotel Cecil.

The death took place at his residence, Juniper Green, on Sunday last of Mr. Peter Lyle Henderson, F.R.I.B.A. Mr. Henderson was sixty-three years of age, and had been in failing health for some considerable time. He had at one time an extensive practice, and a number of the breweries in Edinburgh and district were built to his

plans. He was a prominent Freemason, having been Right Worshipful Master of Mary's Chapel Lodge, and one of the founders of the Past Masters' Association of the Metropolitan District. In 1890 Mr. Henderson defeated the late Baile Colston in the municipal election contest for the representation of St. Andrew's Ward, but in a petition being presented to the Sheriff he was unseated, and Mr. Colston declared elected. He was a member of the Edinburgh High Constabulary, and in 1889-90 he held the office of Moderator.

Peter Kerr, the well-known Melbourne architect, whose death was recently announced at an advanced age, was, says the R.I.B.A. Journal, for many years a Fellow of the Institute, but resigned membership a few years ago, having been long retired from practice. Mr. Kerr was articled to Mr. Archibald Simpson, of Aberdeen, over seventy-three years ago, and was afterwards in the office of Mr. George Foster Jones, of York. About the end of 1845 he removed to Dunrobin Castle, Glasgow, where he was engaged on the extensive additions to the castle. On the completion of his work he came to London and entered the office of Sir Charles Barry. In 1852 he emigrated to Australia, and after a brief experience of cattle-raising on the George River, returned to his profession as an architect in Melbourne, first in partnership and subsequently on his own account. His principal works included the Harbour Trust Offices, the Chinese Court of Arbitration, Port Phillip Club Hotel, and the first part of the Houses of Parliament. In 1877 he became Government Surveyor-General, and was by the Royal Commission of Parliament Buildings as their architect for the Houses of Parliament. Mr. Kerr had a share in designing, detailing, and carrying into execution Government House, the new Law Courts, and the Public Office. He also carried out the Registrar-General's Office, and extensive additions to the General Post Office.

Mr. William Harrison, A.R.I.B.A., of 15, Old Jewry, E.C., died on Friday last at the Chaplain's Lodge, at his sixty-seventh year. He had been an Associate of the Royal Institute of British Architects for twenty years.

A new infant-school at Heron Cross, Fenton, Staffs., was opened on Friday. It provides accommodation for 280 infants. The builders were Messrs. Ball and Robinson, of Stoke-on-Trent.

The Carnegie Trustees of Dunfermline have invited architects throughout the country to submit competitive designs for the erection of an institute adjoining the bowling-green in Netherdown-street.

A Local Government Board inspector has held five inquiries on the application of the rural district council of Bourne, Leicestershire, to borrow nearly £50,000 for the erection of about 20 cottages in the Deeping and Bytham districts.

The exhibition gallery of the Department of Prints and Drawings at the British Museum, which has recently been closed for rearrangement, will be reopened to the public to-morrow (Saturday) with an exhibition of drawings by European artists acquired by the department during the last eight years. Besides a unique collection of drawings by Titorelli, there are also examples of many of the greatest masters, English and Continental, from the Renaissance to the present day. The exhibition will remain open until the new wing of the museum is sufficiently far advanced to allow of the transference of the department to its future quarters.

Some discoveries have just been made in the course of some work of preservation at Whitcomb Church, Dorset, that, in the pastoral charge of the poet William Barnes. Three large sections of a finely-carved Celtic cross have been discovered in the course of rebuilding the east wall of the chancel, which contains a well-proportioned Doric arch. The cross, the well-known road-lift steps have also been discovered, having been walled up probably during the Puritan period. The removal of the plaster on the north wall of the nave has revealed a part of a fresco, representing the 15th Century. The carving, and the customary figure of St. Christopher, supporting on his left shoulder the infant Christ, who is holding the orb surmounted by a cross.

Kaye-Parry, L. O'Connell, H. Alberry, A. G. C. Miller, J. H. Welch, C. Hayes, G. P. Sheridan, F. G. Hicks, Professor Scott, and C. A. Owen hon. secretary. The minutes of the ordinary meeting of May 6 and of the special meeting of the 15th were read and signed. A large amount of correspondence was dealt with. A discussion arose as to the projected public meeting to be held in connection with the School of Architecture at the National University, and the committee dealing with the subject were asked to report on the present position of the matter. The question of nominating an assessor for the forthcoming competition for the new Municipal Building was under review. A motion in connection with the scheme of examination was considered, and referred to the Examination Committee. Professor Scott was appointed to draw up the particulars for the Institute prize to be competed for by members of the Architectural Association of Ireland.

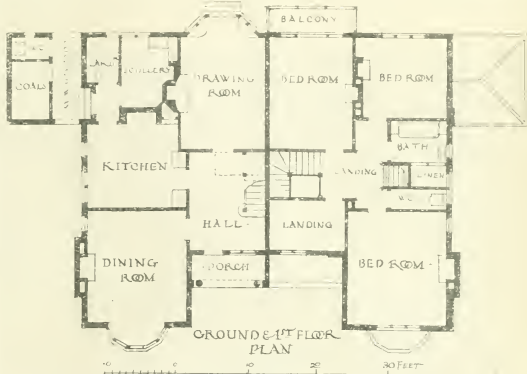
THE SURVEYORS' INSTITUTION.—The forty-fourth annual report of the Council, submitted at the annual general meeting last Monday, records an increase of 205 over the total at the end of the Institution year in 1911. The main item calling for comment in the balance-sheet for 1911 is the sum of £7,058 paid on account of the building extension now in progress. This payment was partly provided for by the £2,500 brought forward on deposit at the beginning of the year. The building operations have necessitated an overdraft at the bank; but, unless unforeseen circumstances arise, the Council hope to pay off the outstanding balance during the current year without sale of securities. The receipts from the hire of rooms were necessarily affected by the building operations, and fell from £342 to £212; but there are indications that this loss will be more than made up during the present year. The large increase which was recorded last year in the number of candidates presenting themselves for the Institution examinations has been continued, the total, 1,223, being 318 in excess of 1911, which in its turn was 132 more than the highest previous record.

THE ANTIQUITY OF HOT WATER PIPES.—At a recent lecture to the Cardiff Building Students' Society, Mr. W. H. Allen said that the notion of hot water in pipes was of great antiquity, and the method of heating baths by passing the water through a coil of pipes which passed through a fire was known and practised before the Christian era. Except that the tubes were of brass, they were precisely similar, both in form and arrangement, to those occasionally used at the present day. The origin of the invention of employing hot water for diffusing heat appeared to be hidden in considerable obscurity. It seemed to be used first in France in 1777, and was employed by a B. Bonnemain for hatching chickens by artificial heat.

The death is announced of Mr. J. Scott, who since 1866 has acted as assistant surveyor under the Antrim County Council.

Plans of a new church for St. Mary's congregation were presented on Monday at Netherwell Dean of Guild Court by the kirk-session of Dalziel Parish Church. The site of the church is in the west end of the burgh, surrounded by a villa population. Accommodation is being provided for 600 worshippers, and the cost of the church and small hall is estimated at £4,000. The Court approved of the plans.

As a result of a consultation with Mr. Norman Shaw, R.A., the town hall extension committee of the Bradford Corporation has decided to reconstruct the clock-tower so that it should not be interfered with, and that a main staircase shall be carried from the first floor, through the old council chamber, to a connecting corridor with the new building. The extension itself was erected in 1907-9 on plans by Mr. F. E. P. Edwards, A.R.B.A., then the city architect of Bradford, who was associated in the work with Mr. Norman Shaw; plans and views of this extension appeared in the *Building News* for September 14, 1906. The construction of a grand staircase that is contemplated has been devised by Mr. R. G. Kirby, F.R.I.B.A., and was illustrated in our issue of September 8, 1911.



HOUSES, BUXTON ROAD, LEEK.—Mr. REG. T. LONGDEN, Architect.

Our Illustrations

LLOYDS NEW BANK, ST. JAMES' STREET, S.W.

This drawing is exhibited at the Royal Academy. Messrs. Waller and Son are the architects. We have no further particulars.

NEW HOSTEL, SPRINGFIELD MOUNT, LEEDS: FOR THE COMMUNITY OF THE RESURRECTION.

The plan of the complete scheme is designed in the shape of a semi-quadrangle, with a front to Springfield Mount about 170ft. long, and east and west wings about 77ft. long. The semi-quadrangle is open to the south, except for the dwarf wall shown in the foreground of the accompanying picture. Mr. Temple Moore, F.R.I.B.A., is the architect. The first portion, comprising the central tower and half the front to Springfield Mount and the east wing, was built about two years ago. This part already erected includes a large hall, common room, smoking-room, common study, grand staircase under the tower, kitchen, offices, servants' quarters, and thirty-two bedrooms. The portion yet to be built includes the chapel and vestries, warden's rooms, and further study and bedroom accommodation. The accompanying illustration is from the perspective in this year's Royal Academy.

NOTGROVE MANOR, GLOUCESTER-SHIRE.

This drawing is now at the Royal Academy, showing the entrance front of this country house, of which Mr. A. N. Prentice, F.R.I.B.A., is the architect. Messrs. Saunders and Son, of Cirencester, are the builders. We gave a bird's-eye view of the building from the other side, and a plan in our issue for May 6, 1910. The church adjoins the grounds. The manor-house was formerly occupied by a farm, and dates from the Tudor period. The kitchen wing is entirely new, and the drawing-room has been added, with many other extensions now finished.

HOUSES, BUXTON ROAD, LEEK.

These houses occupy a site having extensive views: hence the freedom from projecting offices at the rear. They are built of brick and roofed with hand-made tiles, with tile coursing, springers, etc., to gables. The contractor was Mr. T. Grace, of Leek, and the architect Mr. R. T. Longden, of Stoke, Burslem, and Leek.

CHURCH OF ST. ANDREW, CLEVELEYS.

Mr. R. H. Cunliffe is the architect of this church. We have received no description.

ST. RAPHAEL'S, BUXTON.

This is by Mr. J. Coates Carter, F.R.I.B.A.; but no response has followed our application for more details.

Swan Corner, Leam (head, regarded by motorists and pedestrians as one of the most dangerous in the South of England), is to be improved at a cost of £600.

The ancient bells of Childwall Parish Church, recently repaired and relung, at a cost of £360, subscribed by the parishioners, headed by the Marquis of Salisbury, were rededicated in Tuesday.

Mr. F. O. Stamford, A.M.I.C.E., Local Government Inspector, has had an inquiry at the Town Hall, Tiverton, into the application of the Tiverton Town Council for sanction to borrow £3,350 for the purpose of widening Gold-street and Lowman Bridge. There was no opposition.

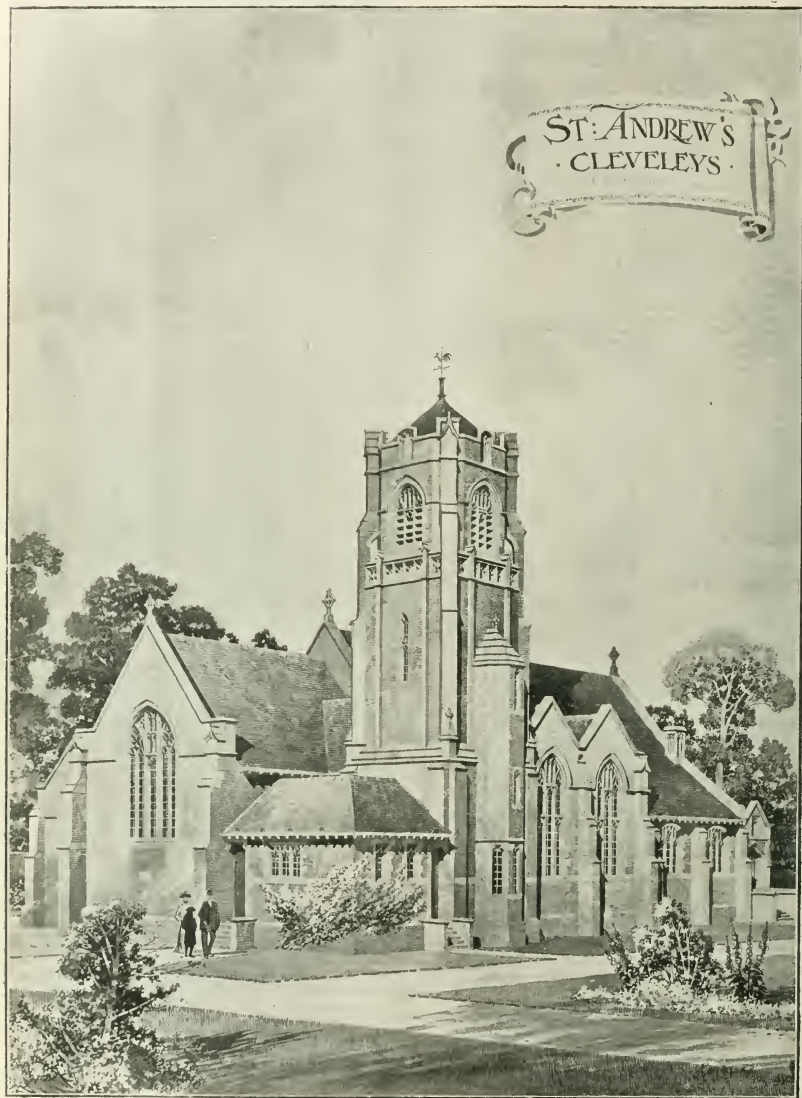
The Lord Mayor of Bradford held on Tuesday a memorial stone at the new Great Horton branch library, which is now in course of erection. The library is to provide accommodation for 12,400 volumes, and the principal entrance is to be from Cross-lane. The cost of the building is estimated at £3,500.

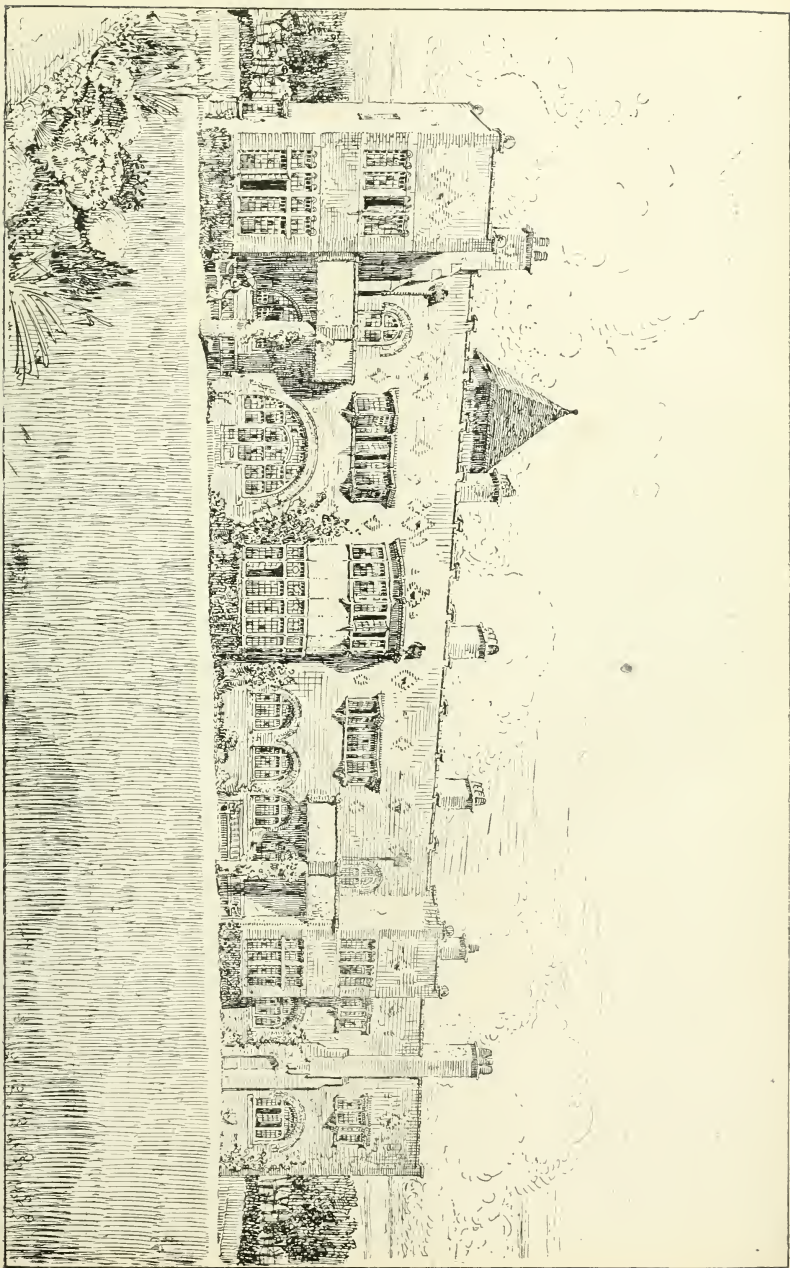
At a meeting of Liberton School Board held on Monday, plans for the erection of a new school at Gilmerston, to accommodate 400 pupils, as prepared by Mr. James Inch Morrison, L.R.I.B.A., York - place, Edinburgh, were adopted. The plans show, beside class-rooms, a large central hall, a cokeroy room, and a manual instruction room. The building will be erected on the site of the Anderson Female School.

Ernest Thomas Redcliffe, aged about forty-six years, a plumber, who for the last ten years had resided alone in rooms at Newport-buildings, Leam, on Sunday night fell downstairs, injuring his head, and died in Charing Cross Hospital on Monday. It has since been discovered that he had saved about £200, and the police at Vine-street are anxious to trace relatives of the dead man, who is believed to have a sister living at Clapham.

The well-known sculptor M. Francis-Raoul Larch died in Paris on Wednesday, June 19, as the result of a motor accident. M. Larche was born at Saint-André-de-Cubzac, in the Gironde, in 1860. In this year's Salon he exhibited a marble "La Flémance." His group "Les Violettes" is in the Luxembourg, and amongst the best known of his works are "La Toupée" in the Municipal Museum, Paris, "Le Ruisseau" in the Senate, and "Jeanne d'Arc" in the Madeleine.

A meeting of the Engineering Standards Committee will be held on Wednesday, June 19, at the Surveyors' Institution, to consider, at the request of the Road Board, the question of the standardisation of road material, with a view to ascertaining in what directions standardisation may most usefully proceed. The conference will be held under the chairmanship of Sir John Wile Barry, chairman of the Engineering Standards Committee.





ST. RAFAEL'S, RECTORY.—MR. J. COATES CARTER, F.R.I.B.A., ARCHTCT.

COMPETITIONS.

EAST BOURNE.—The competition for the new library and reading room at the East Bourn and Epworth Methodist Church has been settled in favour of Messrs. George Baines and Son, 4, Church-street, Strand, W.C., who have been appointed architects for the work. The estimated cost of the first portion of the scheme is £2,000.

SOCIETY OF ARCHITECTS' TRAVELLING STIPENDSHIP, 1912.—Four sets of designs were received from students of the Society in competition for a Design for a Town Hall, and the Council have awarded one first place and the prize to Mr. Frank Marrell Maddox, of 41, Malvern-avenue, Burton-on-Trent. The drawings are on view at the Society's premises, 28, Bedford-square, W.C., and can be seen during the evening by those who are unable to do so during office hours.

UNIVERSITY COLLEGE, DUBLIN.—The Governors of University College, Dublin, invite the Irish architect to submit designs for new buildings to be erected on a site in Earlsfort-terrace, Dublin. Mr. Henry T. Hare, F.R.I.B.A., is to act as assessor, and has drawn up the conditions. The author of the selected design will be appointed to carry out the work according to the standards of charges of the R.I.B.A. If he is not instructed to proceed within twelve months from the date of the award he will be paid £500, which will form part of his commission if the work proceeds. If the scheme is abandoned he will receive £1,000, and his designs will become the property of the Governors. The authors of the designs placed second and third will receive £150 and £75 respectively and their drawings will be returned to them. Designs are to be sent in by September 30, 1912. No extension of time will be granted. All applications must be made to Mr. John W. Bacon, M.A., the Secretary of University College, Dublin. Questions by competitors must reach him by June 22. The cost of the building ultimately will be £160,000, but the first portion will not exceed £95,000. Limited to the fact that the competition is, one rather envies our Irish brethren the opportunity. It can hardly be more than a thirty-to-one chance.

Mr. E. S. Underwood, F.R.I.B.A., of Queen-street, Cheshire, E.C., who was consulted on the condition of the tower of the Church of St. Mary de la Cour, at Northwich, in spite of slight decay, the stability of the fabric is not impaired. Certain repairs are to be carried out at a cost of £360.

At Crewe, on Saturday, two large bronze busts and a life-size oil-painting of the late Mr. F. W. Webb, for many years the chief mechanical engineer to the London and North-Western Railway Company, were unveiled. The busts are modelled by Sir H. B. Robertson, of Corwen, and are placed in the railway orphanage and the cottage hospital, both founded by Mr. Webb.

The Bridge House Estates Committee have retained the services of Sir William Emerson, past president of the Royal Institute of British Architects, as architectural assessor in matters relating to St. Paul's Bridge. The engineer will be Mr. Basil Mott, who will also be mainly responsible for the reconstruction of Southwark Bridge, assisted by Sir Ernest George, A.R.A., as architectural adviser. Sir William Emerson was one of the three architects appointed to prepare architectural opinions before the Committee of the House of Commons on the Bridge Bill was before Parliament.

The Hampshire Field Club and Archaeological Society held an afternoon meeting in the neighbourhood of Winchester on Thursday last week. The party proceeded in brakes to Beaulieu, a village made famous by a large find of Norman coins there in 1833. A hall was made at Chosford Head to view the ancient trackways over the Down, and the remarkable Roman locality known as the "Punch-bowl." By permission of Mr. Prentice, the grounds in which the old church and residence of Bishop Walkelin were situated were visited, and on the exact spot where the silver pennies between 8,000 and 9,000 in number and dating from the last twelve years of the reign of William the Conqueror were discovered. Mr. W. Daw, F.S.A., the hon. general secretary of the club, read a paper on Beaulieu.

Correspondence.

"GOOD ENOUGH FOR IRELAND!"
BUT WHAT ABOUT ENGLAND?"

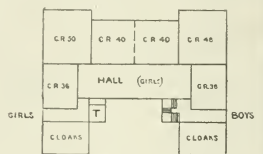
To the Editor of the BUILDING NEWS.

SIR,—In reading your leading article last week the question is suggested as to whether the Council of the Royal Institute of British Architects are as keenly alive to the interests of members of the profession as the Royal Institute of the Architects of Ireland. At the present moment, as may be gathered from questions by Mr. Philip Snowden in the House of Commons, a scheme for the establishment of Architectural Assistants in H.M. Office of Works is on foot, by which, from the answers given, one fears the status of members of the R.I.B.A. will be very inadequately recognised, if at all. Has the Council of the R.I.B.A. done anything to support its members? Is it even giving evidence before the Royal Commission on the Civil Service as to the professional training, position, and responsibility of numbers of the members of the Institute employed in the public service? Is it not rather concerned with passing resolutions, professing in the interests of the public, to the effect that public bodies should not engage in architectural work—a proposition beyond the range of practical politics?—I am, etc.,

A R.I.B.A.

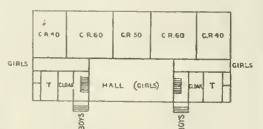
NEW SCHOOL AT HARWICH.

SIR,—The competitive plans for a new school at Harwich have been on view this week, and you may possibly find the following notes and sketches of interest. The competition was for an elementary school for 250



First.—Messrs. Brown and Burgess.

boys and 250 girls. Premiums of twenty, fifteen, and ten guineas were offered. The assessor was Mr. Paul Waterhouse; but the committee reserved the right to set aside his award. The site is a rectangular one, almost



Second.—Mr. Johns.

level, with a north frontage of 120ft. to the main road, and a depth of 300ft.

The assessor's award was as follows:—1. Messrs. Brown and Burgess, Ipswich; 2.



Third.—Messrs. Goodey and Cressall.

Mr. Johns, Ipswich; 3. Messrs. Goodey and Cressall, Colchester.

The award, I think, calls for some comment. It will be noted that the first and second designs are of the central hall type, and in no way conform to the present requirements of the Board of Education. The

majority of the classrooms are approached direct from the hall, and no attempt has been made to get cross ventilation either to the halls or classrooms.

The provision of separate halls for boys and girls cannot be considered economical, and is not necessary, as there is ample room for the whole school to be on one floor. The second design has other grave faults. Classrooms to accommodate sixty children should not be considered now; and four entrances, cloakrooms, lavatories, and teachers' rooms in a school for 500 children is somewhat wasteful.

The third design is perhaps the most interesting of the three; but it cuts up the playground far too much, and the position of the cloakrooms in relation to the hall is utterly wrong.

The majority of the other competitors must have felt themselves somewhat taken in, as they have endeavoured to comply with the more advanced ideas of school-planning. The result of the competition, on the whole, is distinctly disappointing, and makes a retrograde step, which is to be regretted. One could understand a committee making such selections, and following a well-worn type, but not so a professional assessor.

It will be interesting to know what view the Board of Education will take of the matter. I am, etc.,

Colchester.

PROGRESS.

AN EARLIER LIGHT AND AIR CASE.

SIR,—Referring to Mr. Clark's interesting note as to an early "Light" case in the BUILDING NEWS of May 24)—Mau's "Pompeii" records a case about 840 years earlier, giving a translation of inscription discovered at Pompeii, as follows:—

"Marcus Holconius Rufus, dumviri with judiciary authority for the third time, and Gaius Egnatius Postumus, dumvir with judiciary authority for the second time, in accordance with a decree of the city council, purchased for 3,000 sesterces the right to shut off light (from adjoining buildings), and caused to be constructed a wall belonging to the colony of Pompeii to the height of the tiles."

Marcus Holconius (whose house most visitors to Pompeii will remember) was dumvir for the fourth time in B.C. 32, as an interval of at least five years had to intervene between two individual dumvirages, his third term was most likely about n.c. 10.

These dates and sesterces would be equal to about £31 of our present money. The wall in question was probably on the west side of the Court of the Temple of Apollo.—I am, etc.,

JOSEPH OSWALD.

2, Worswold-street, Newcastle-upon-Tyne, May 31.

THE SEASIDE CAMPS FOR LONDON WORKING BOYS.

SIR,—Will you kindly allow me to appeal to your readers for help to carry on the work of these camps.

Briefly stated, their object is to provide accommodation for a week or two at the seaside for as many London working boys as funds will permit.

Our first camp was opened twenty-four years ago, and year by year the work has extended until last season we were able to receive about 3,700 lads, more than half of whom were members of our Diocesan Church Lads' Brigade and Diocesan Boy Scout Corps.

The boys contribute a share of the expenses on a sliding scale according to their age, but it is obvious that these contributions need to be largely supplemented. I trust, therefore, that you will allow me to make this appeal through your columns to the generosity of the public.

I believe that, in spite of this year's special demands, there will be many who will gladly contribute towards so desirable an object. The number of eager applicants is yearly on the increase, and the thought of the benefit and delight of this change from the close confinement and high pressure of city life to rest, freedom, and sea air, speaks more eloquently than words can do.

Contributions may be sent to our bankers, Messrs. Coles, Biddulph and Co., 43, Charing Cross, S.W., or will be gratefully acknowledged by our Secretary, Mr. F. Abel Bloxam, at 22, Northumberland-avenue, W.C.—Yours, etc., (Sd.) A. F. LONDON (President).

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can be accepted a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

All else being equal, brief replies will stand the best chance. We emphasise this, as some correspondents ignore the fact that queries want terse facts, not long essays. Any necessary illustrations must be in line only no tints or washes—and about twice the size they are meant to be reproduced. We are unable to draw ourselves replies that contain illustrations unless we receive them by first post on Tuesdays.

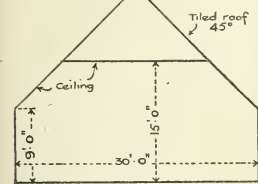
The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

QUESTIONS.

[11303.]—**WATER-CLOSET.**—I have to fix a w.c. in a basement, and as the drain is almost level with the top of the apparatus, in the event of the drain becoming choked, an overflow would occur through the w.c. pan. Shall I be safe if I adopt an ordinary water closet? I have thought of an "under water line" ship's closet; but this is very costly, and the pumping action is not nice for a house w.c. A practical reply will be esteemed.—Sanitas.

[11304.]—**BUILDING BY-LAWS.**—Has an urban district council power to compel a building owner to erect a stable in this case—beyond a distance of 12ft. from the centre of an existing country road, about 12ft. wide, which has for all time been a public highway? The datum is made that a new building line is being laid down. An urban district council have instructed their surveyor to return all copies of drawings—deposited for approval—made by photo-process on Gallic linen, and insist upon being supplied with actual tracings on transparent linen. Can the demand be upheld, or the objection successfully opposed?—By Law.

[11305.]—**CEILING OF HALL.**—Diagram shows manner in which it is desired to cell hall. Will a



reader kindly suggest most economical form of timber principal, with iron or steel tie-rods (not in a circular or rectangular form) for general? No objection to any portions of principal showing in hall. Principals 11ft. centres.—Larne.

The new waterworks, which have been constructed for Fraserburgh, were inaugurated on Wednesday. The water has been taken from Fadderide, a distance of 18 miles, and the reservoir has been provided at New Deer. The reservoir covers an area of 25 acres, and is capable of holding 65,000,000 gallons. The scheme, which has been carried out under the supervision of Mr. Allan Carter, of Edinburgh, has cost £32,600.

Messrs. Reginald Bloufield (president-nominate of the Institute), William Dunn, William Flockhart, W. A. Forsyth, James S. Gibson, Walter Tapper, Septimus Warwick, and Edmund Wimperis, whose names were appended to a circular on the registration of architects recently issued by the Institute Members' Club, "wish it to be known that they were not consulted as to the issue of this circular, and did not see a copy of it before it was issued."

PARLIAMENTARY NOTES.

VOTES IN SUPPLY.—The sitting of the Commons on Tuesday was assigned to various votes of money for buildings under the control of H.M. Office of Works, and many of the items of expenditure were closely criticised. On the subject of £230,000 for dilapidated and dilapidated buildings, and the maintenance of British cemeteries abroad, Sir F. Bannbury and Sir J. D. Rees demanded explanations of the sum of £5,000 asked for to provide a reception room at the Cairo consulate, and Mr. Bannbury objected to the provision of a new post-office and prison at Casa Blanca, Morocco. Sir J. D. Rees also inquired as to the £3,000 to be spent on additions to the supreme court and consular offices at Shanghai. Lord Alexander Thynne severely criticised Office of Works expenditure. He took special exception to the spending of over £20,000 on the rebuilding of the summer villa on the Bosphorus of the British Ambassador at Constantinople, and £14,000 for the completion of the new Legation House at Mexico. Mr. Wedgwood Benn defended the estimates, explaining that the summer villa at Constantinople would replace one recently destroyed, and that the division, the House was agreed to, as were votes to complete the sum of £71,300 for expenditure in respect of Royal palaces, and to complete the sum of £13,000 for Osborne. On the vote to complete the sum of £125,000 for the Royal Palace and pleasure gardens, objection was taken by Mr. Whitehouse to the erection of the Peter Pan statue in Kensington Gardens. He wanted to know what the House would say in the event of the statue presented the First Commissioner of a statue of "Dear Old Charlie." Mr. Handel Booth, however, solved that problem in ethics by suggesting Piccadilly as a suitable site for the statue. There was some general criticism of the Green Park site chosen for the erection of the King Edward VII. memorial, and the character of the design selected. Mr. Burdett-Coutts contended that the enormous sum of money and all groups of all classes of figures facing Piccadilly, which was proposed to erect in connection with the memorial to King Edward would detract from its dignity and value, and, at the same time, would tend to destroy the amenities of the Park. The vote was, however, agreed to without a division. On the vote to complete £50,800 for Houses of Parliament buildings, Mr. Norman Craig commented upon the unfortunate site selected for the new buildings, and the expense of the boiler-house, and a hot-water pipe being carried through the larders. The money was also wasted. Mr. Whitehouse referred to an item of £530 for building a base for a group of statues in the new Victoria Embankment Gardens, and said that Mr. Rodin's singularly beautiful piece of statuary "The Burghers of Calais" required a more historical and architectural setting than the Embankment Gardens. Mr. J. O'Connor expressed anxiety as to the condition and preservation of the two famous freecies by Daniel Maclise in the Royal Gallery—"The Death of Nelson," and "The Meeting of Wellington and Blucher on the Field of Waterloo," which were fading rapidly from view. Mr. Wedgwood Benn, in reply, said it was proposed to place the copy of Rodin's group of "The Burghers of Calais" in the Victoria Tower Gardens as a most suitable place. Probably a year would elapse before the new freecies by Daniel Maclise in the Royal Gallery and other parts of the Palace of Westminster was carrying out in the adjoining roads and the extension of the Millwall Embankment must be finished first. With regard to the condition of the freecies in the Royal Gallery, the Office of Works had the advice of Sir Alfred Church, on whose recommendations a report was taken from time to time. It was said by one member of the House that it was desirable in that Chamber. He did not agree with that opinion. The electric-light had been partially installed already, and he maintained that a crack on the eyes would be just the same as a crack on the gas for he had seen it come through the glass roof. The cost of electricity would be only £250 a year, and there would be a saving of about £140, or half the expenditure on maintenance. Moreover, electricity was safer than gas, and it would help in the better ventilation of the House. The vote was agreed to without a division. On the vote of £64,300 for Arts and Science Buildings in Great Britain, Lord Thynne urged the Government to take adequate measures against fire in the Royal House and the National Gallery. Mr. Wedgwood Benn stated that alterations were being made at the National Gallery and at Hertford House for the purpose of making those places more fire-proof. Replying to Mr. Price he said that they were taking money to acquire property at the back of the museum at Edinburgh, in order to extend the Museum, and also to provide for

an extension of the museum on the side already occupied. The vote was then agreed to, as were votes for £515,800 for Customs and Excise Inland Revenue, £1,011,000 for Labour Exchanges, and £113,300 for Labour Exchanges and Insurance buildings. On the vote for £407,500 for sundry buildings, Lord A. Thynne said that a great part of the enormous expenditure for which this vote provided would not be necessary if the Office of Works adopted the policy of erecting public buildings in a wider area, instead of concentrating them at a Whitehall. A great saving could be effected if some of the buildings contemplated were erected on sites on the south side of the river, Mr. Wedgwood Benn replied that part of the Victoria Memorial scheme comprised the erection of two groups of statuary on Sir Aston Webb's arch at the end of the Mall, and a small model, with a view to showing the general effect of these groups, had been prepared by Sir T. Brock. As to the suggestion that Government buildings might be erected on cheaper sites, the vote included a sum for the erection of a stationery office on each side of the river, but the Government would be defeating the object they had in view if they dispersed their buildings on both sides of the Thames. The vote was agreed to.

LEGAL INTELLIGENCE.

ARCHITECT'S FEES.—Of consent, judgment was entered for the plaintiff and twenty-five guineas and costs against the defendant, who returned all drawings, in the action raised by William Davidson, architect, 54, Queen-street, Edinburgh, against the Rev. Charles Wilton Pringle, Bexwell Rectory, Downham Market, Norfolk, which had been set down for trial on May 30, 1912. The claim was one for fifty guineas for services rendered by the plaintiff in preparing designs for a proposed restoration of Potter Heigham Church, Norfolk, and the defence was that any such claim was barred, as had executed was of the nature of an expectation that he was to be the architect in the event of the restoration being proceeded with. The defendant had accordingly denied employment.

STATUES, MEMORIALS, &c.

LIVERPOOL.—The committee charged with the erection of a memorial in Liverpool to the late Sir Alfred L. Jones, the well-known shipowner, have selected a site on the south end of the Pierhead—a triangular garden on the river front formerly occupied by the old baths, and now opposite to the new offices of the dock board. Here there will be erected Sir George Frampton's allegorical group of statuary, which as its central feature facing the entrance to the Mersey a figure of Sir Alfred.

WATER SUPPLY AND SANITARY MATTERS.

THE PAIL SYSTEM AND TYPHOID EPIDEMICS.—Major J. Stewart, R.E., conducted a Local Government Board inquiry at St. Helens, Lancs. on Friday, into the application of the corporation for sanction to borrow the sum of £18,000 and £9,000 for the conversion of the sanitary arrangements of the town to the water-carriage system.

Mr. J. Landell Nicholson, of Newcastle-on-Tyne, has been appointed surveyor to the Long-benton Urban District Council.

Sanction has been received by the urban district council of Hendon to the borrowing of £11,664 for street improvements; £17,063 for a garden sub-station; and £695 for the furniture and equipment of same.

The new church of St. Peter, Abercrombie, Merthyr Tydfil, erected at a cost of £2,600, has just been opened. The architect was Mr. T. Edmund Rees, of Merthyr Tydfil, and the contractors were Messrs. Santo Spencer and Co., of London.

The Hunner Conservancy Board have decided to submit to Sir William Matthews, Sir John Purser Griffith, engineer to the Dublin Port and Docks Board, and Mr. A. G. Lyster, engineer to the Mersey Docks and Harbour Board, a comprehensive scheme contemplated for the improvement of the Hunner.

Sir Sidney Colvin, who has for over twenty-eight years filled with so much distinction the post of Keeper of the Prints and Drawings in the British Museum, will retire from the public service on Tuesday, the 19th inst. His farewell exhibition, continuing the best of the acquisitions made by his department during the last seven or eight years, will be opened to the public to-morrow (Saturday).

Our Office Table.

The historic fireplaces—which, but for the generosity and public spirit of Earl Curzon of Kedleston, would have been lost to the country—were restored to Tattonhall Castle on Wednesday, amid great rejoicings.

In reply to a vote of thanks expressed on behalf of the villagers, by the chairman of the parish council, Lord Curzon explained that seven months ago he recovered the castle for the nation. The fireplaces had gone, and the fear was that they would be taken out of this country across the ocean and sold in America. He then decided to attempt to recover the fireplaces, and Lord Curzon went on to describe what was proposed to be done both with the fireplaces and with the castle. Under the direction of Mr. Weis, they were excavating the whole of the castle area in order to discover as far as possible what was there before. While the keep was almost the only structure that remained, it was only part of the castle, and all about the inner walls were buildings of various descriptions, constituting one of the greatest mansions in that part of England. They knew from records that Lord Cromwell, who built that place, lived in that castle with a hundred personal retainers. He did not propose to rebuild that which was gone; but there were certain things he would restore, and first and foremost were the moats. He hoped to restore both the inner moat and the outer one, and he proposed to restore, for everybody to see, a picture of this great fortified mansion as it was 445 years ago. In the centre the ground would be levelled, and be available for the people to walk about on. The work would occupy certainly a year, and perhaps longer. Then they would begin from the roofs and restore the whole interior of the castle, putting in four floors, so that visitors would be able to see what the internal character and life of the castle in the old days was. Then the mantelpieces would be placed in their niches, the nullions of the windows put back, and glass inserted, and though he would not hope to live there himself, yet the castle would be there for anyone to see, and it would be a type and memorial of the sort of conditions under which great noblemen once lived.

The Middlesex County Council have received a letter from the Commissioners of Works inviting the council to co-operate in the preservation of ancient monuments and historic buildings, and intimating that where the expense of preserving monuments of national importance is heavy, it might fittingly be defrayed from national rather than local resources. Acting on this suggestion, the general purposes committee made inquiries in the county, and have forwarded a list of buildings, earthworks, and ancient monuments to the Office of Works as worthy of preservation. The list includes: The London Stone, placed on Lambour land at Staines about 1270; Hogarth's House, Chiswick; a mansion at present in possession of the county council, and containing a large collection of the artist's works. Bury Hall, Lower Edmonton; Headstone Grange, Pinner; Grim's Dyke, Harrow Weald; the Eleanora, Mausoleum in Pymmes Park, Edmonton; St. Mary's House, Lambour land, Edmonton; the Derwentwater Monument in Acton Park; Garrick Temple, between Thames-street, Harrow, and the river; the Old Pie House, West-street, Harrow; Tower of St. Mary's Church, Hornsey; Cromwell House, Highgate, erected in the 17th century, probably by a member of the Springwell family; the Treaty House, Uxbridge; traces of Roman encampments, ancient barns at Totteridge and at Harmondsworth; and also Saxon and Danish mounds at Camlet, Old Bury, Tottenham (three), Hanworth, Pinner, Enfield, Northolt, Alperton, Acton, Ruislip, Down Barn.

The research committee of the Society of Antiquaries, in conjunction with the Shropshire Archaeological Society, are about to begin systematic excavations of the Roman city of Uricomium, which lies buried on a site of some 1700 acres, about six miles to the south of Shrewsbury, and under the shadow

of the Wrekin. The preliminary arrangements with the owner of the site, Lord Barnard, and his tenants for the work of excavating have been completed. The work will be of great importance, will extend over several summers, and involve an expenditure of at least £300 a year. For the sake of comparison it may be pointed out that Roman London covered about 360 acres, Verulamium about 180, and Silchester 100. Of the origin and early history of Uricomium little is known. The date of the first Roman occupation of the site seems, from the evidence already available, to fall well within the first century A.D.

Mr. Julia Belcher, R.A., calls attention to the *Times* to the manner in which, for more than twelve months past, the east wing of the Piccadilly Hotel has been left without a street-front, owing to the failure of the hotel company to induce the owner of the block to build a new façade corresponding to the western wing of the hotel. Mr. Belcher suggests that the parties might agree to appoint an arbitrator, who should decide upon the plan which the desired object can be secured, while preserving the respective rights and requirements—and, if necessary, should adjust the value of any material loss incurred by either side.

An inquiry will be held on Tuesday at Walthamstow, before Mr. Thomas Adams, town-planning assistant in the Local Government Board, with reference to an application for sanction to be granted to the urban district council to prepare a town-planning scheme. In many respects the Walthamstow application is the most important that has been submitted to the Local Government Board for approval. It is the first occasion where a local authority has made a request for permission to prepare a plan which will cover every portion of the unbuild area in the district, and the number of opponents to the scheme is said to be enormous. The district in question is that of the Walthamstow Urban Council has hitherto embraced more workmen's dwellings than almost any other outside the county of London. On one side of the area is a large tract of land which has not yet been developed, and there are also the marshes, which are being gradually reclaimed and used for building land. There is a movement to take the Walthamstow land out of the council and it will be interesting to see what attitude the Local Government Board adopts in this scheme, which will probably be taken as a precedent for future developments in town planning.

The health committee of the Liverpool Corporation have appointed their chairman, Alderman Wenlove, and the acting city engineer, to visit West Derby and consider the desirability of preparing a town-planning scheme for the district, including the Milbank portion of the Larkhill estate now offered for sale. No part of Liverpool seems to be more worthy of attention under the Town-Planning Act than West Derby, where there are hundreds of acres of undeveloped land, which, sooner or later, will come into the market. Opposite to the land now offered for sale is a house, situated on a plot of £150, which is the only one of the class of cottages or shops, which could, under the conditions of sale, be built without restriction thereon.

The fourth national conference on city planning was held in Boston, Mass., on Monday, Tuesday, and Wednesday in last week, May 27-29. The members of the conference were entertained by the City of Boston, with the Boston Chamber of Commerce, and the Boston City Club also extending their hospitality. Papers on "City Planning" were read by Mr. Frederick L. Olmsted, of Brookline, landscape architect; Mr. Arnold W. Brunner, of New York; and Mr. George F. Swain, of Harvard University. Mr. J. R. Coolidge, jun., of Brookline, gave an address on "The Problem of the Blighted District," and Mr. Arthur A. Shurtleff, of Boston, lectured on "City Public Street Systems of the Cities and Towns About Boston in Relation to Private Street Schemes." Mr. Nelson P. Lewis, chief

engineer of the Board of Estimate and Apportionment, New York City, and Mr. James A. Gallivan, Street Commissioner of Boston, read papers on "How the City Planning Bills are to be Paid." Mr. B. A. Waldeman, assistant engineer in charge of city planning, Board of Surveys, Philadelphia, described "The Zoning Principle of Germany Applied to the United States." At the annual dinner the speakers included President John H. Finley, of the College of New York; Rev. Newell Dwight Hillis, D.D., of Brooklyn; Hon. Frederick C. Howe, and Mayor Fitzgerald.

The Board of Education have issued a circular to Local Education Authorities and Schools of Art, intimating that the revised arrangements for the Board's examinations in Art and for the award of certificates for teachers of Art will come into force in 1913. Examinations in drawing, painting, modelling, pictorial design for reproduction in black-and-white or colour, and industrial design will be held in or about June of that year. The circular also sets forth detailed syllabuses, prescribed subjects, and the recommendations of the Standing Committee of Advice for Education in Art, on the basis of which the examinations will be held. Incidentally the Board points out the necessity of working from the best casts, a list of which is appended to the circular.

In the annual report to the Board of Education on the Geological Survey, issued as a Blue Book, it is stated that in Scotland the original survey has been continued in the island of Mull, and in parts of Sutherland, Shire, Perthshire, Inverness-shire, and Argyleshire. The relations of the various tertiary igneous rocks of Mull to each other and to the older rocks into which they have been intruded are highly complex, and present problems of considerable scientific interest. The revision of the Lanarkshire coalfield is approaching completion, and that of the Great Oolite has been commenced. Several important results have been arrived at in the course of the year regarding the correlation of the coals and limestones and the value of certain index bands. This work is likely to prove of considerable value in interpreting the results of borings in districts where workable coals are being sought. The preparation of a new edition of the memoir on the oil shales of the Lothians has necessitated a revision of the oil shale fields. This revision, following on a period of extraordinary activity in boring, has proved of value in bringing forward new means of determining the position of the most important shales in bores and shafts, and has indicated the existence of areas in which the search for shales is likely to prove successful in the immediate future.

The new edition of "The Homestead," issued officially by the Great Central and Metropolitan Railway Companies, includes, as readers probably know, a well-illustrated description of the region north-west of the Metropolis, in which so many thousands have sought accessible and delightful habitation. Those as yet unfamiliar with it should get it. They will find a few modest words of advice of our own therein, on "Where shall we live," and "How shall we work more pleasantly house-seeker than all the bunkum in "garden-city" prospectuses; and they will get other hints of value. May all who follow them help to keep "The Beautiful North-west" unspoiled, now it is so easily and conveniently reached!

The London and South-Western Railway Company have published their fourteenth annual official illustrated guide, containing a list of hotels and other establishments which provide accommodation for visitors. More than eighty of the most attractive places on the company's system are mentioned in the descriptive matter, which the Editor, Mr. W. T. Perkins, has again brought up to date, special attention being devoted to Bideford, Bournemouth, the Channel Islands, Dartmouth, Hindhead district, Liphrook, Isle of Wight, the New Forest, Portsmouth and Southsea, Seaton, Sidmouth, Southampton, Swanage, Wadbridge, Westward Ho! Weymouth,

and Woolcombe. Mr. Thomas Hardy, the well-known novelist, has revised what appears in reference to the ancient town of Dorchester, where he resides, and has added a list of the spots in which the most magnificent views in the county are to be obtained. Carefully corrected by the respective club secretaries, the list of golf links approached by London and South-Western train and steamship services has now reached the large total of 120. The guide furnishes all the particulars which players require, and further contains a very useful map, indicating both the coasting and ocean steamship routes maintained from Southampton, Weymouth, Plymouth, and Falmouth. Fifty thousand copies of the book have been issued under the direction of Mr. H. A. Walker, general manager, and the same are sent gratuitously to all parts of the world from the department of Mr. Henry Holmes, Superintendent of the Line at Waterloo Station. The Guide may also be obtained, free of charge, at every booking office on the London and South-Western system, while, by arrangement with the Great Northern Railway, five thousand copies are annually supplied to leading residents in the area served by that company.

A second edition now ready of Mr. F. Farrow's excellent "Stresses and Strains" (London: Whittaker and Co.; 5s.) is published. As many readers know, it is one of the few treatises the student with a limited knowledge of mathematics can grasp, and all such, and doubtless others, will be glad of the new edition, in which additional matter has been included, a few errors eliminated, and greater clearness of explanation effected in regard to several points.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY (TO-MORROW).—Edinburgh Architectural Association. Visit to Yester House and Old Castle of Yester. Train from Waverley Station at 10.15 a.m. to Gifford.

Association of Managers of Sewage Disposal Works. Meeting at Glasgow.

Survey Photographic Service. Whole Day Excursion to Haslemere. Trains from Waterloo 9 a.m. and 9.30 a.m.

MONDAY.—Royal Institution of British Architects. Business Meeting: Election of Council and Standing Committee.

WEDNESDAY.—Institution of Municipal Engineers. "The Structures of the Future in Relation to Aviation," by Horace Cubitt, A.R.C.B. A.P.A. and L.N.E.C.

and "Some Suggestions for By-Laws and Regulations in Relation to Aviation," by E. Wyand, A.R.C.B. A.P.A. and L.N.E.C.

The Institution. The London Aerodrome, Hendon, N.W. 2.45 p.m.

Architects' Assistant's Guild. Visit to British Museum Extension. 6.30 p.m.

SATURDAY (JUNE 15).—Architectural Association. All Day Visit to Hitchin, under the guidance of Walter Milner and Geoffrey Lucas. "Temple Dinsley," a house by Edward Lutyens, will be visited in the afternoon.

Northern Architectural Association. Excursion to South Shields.

The salary of Mr. J. L. Seden, sanitary inspector of Peterborough, has been increased to £200 per annum.

The foundation-stone of a new Conservative Club has been laid at Mansfield. The architect is Mr. Robert Griggs, Gray's Inn-square, W.C., and the contractors are Messrs. J. Gerrard and Sons, of Manchester.

The dissolution is announced of the partnership which has hitherto subsisted between Mr. N. Inman, E. S. Sturdee, and R. T. Inman, architects, and situated at Bedford-square, W.C., under the style of Inman and Sturdee.

The Bishop of London recently consecrated the church of St. Benet Fink, Tottenham, which has been built out of funds set apart for the purpose by the Ecclesiastical Commissioners. The architect is Mr. J. S. Ashurst, of Arundel street, Strand. The church is of red-brick, with stone facings.

The tunnel which is being constructed under the Thames between Woolwich and North Woolwich for the London County Council will be completed early in the autumn. It is about 15,000 ft. in length, and will cost about £90,000. It provides for stairways to and from the roadway. The new tunnel necessitates the dredging of the river overhead to a depth of 33 ft.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be directed to a brief and to the point, and should be accompanied by the name and address of the contributor, upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, &c., should be sent to the EDITOR of the BUILDING NEWS, Edinburgh House, 1, Arundel-street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsatisfactory communications.

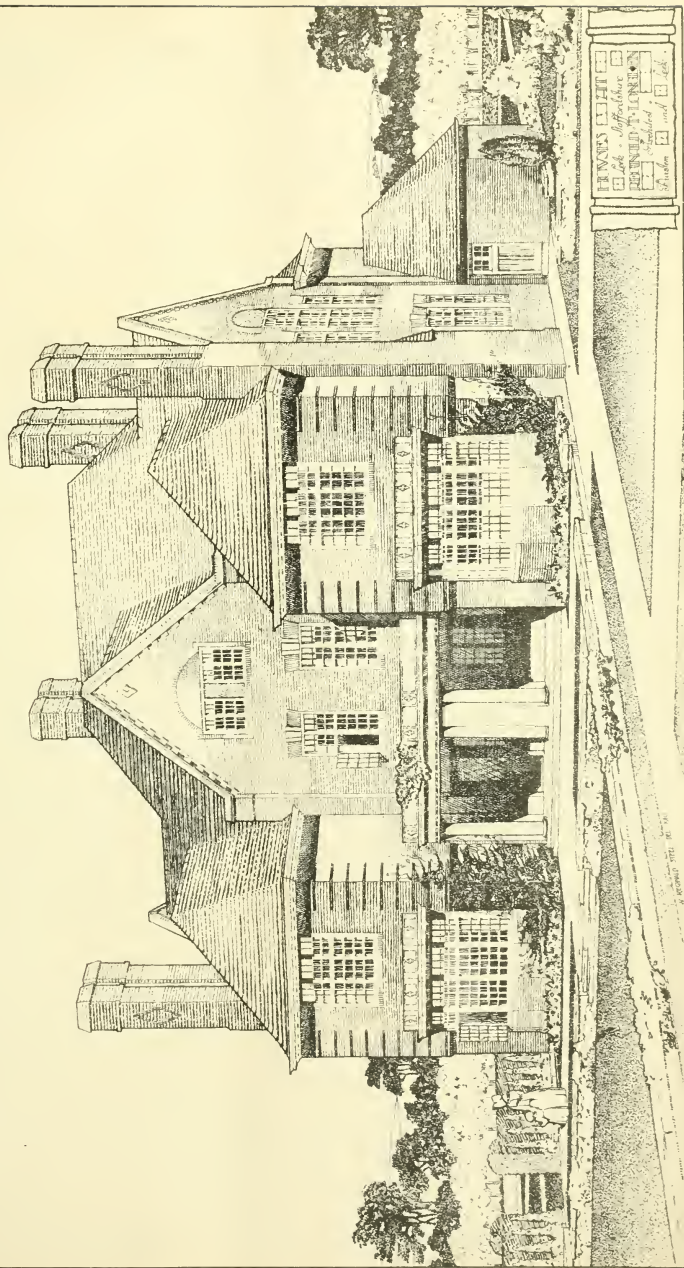
* Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such material is made no insertion. Of more commonplace subjects—small churches, chapels, houses, &c., we have usually far more sent than we can insert, but are glad to do so when space permits on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor much good to illustrate buildings which have been recently completed, except under special circumstances.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED, and crossed London County and Westminster Bank.

NOTICE.

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OUR ILLUSTRATIONS.

Marylebone Town Hall. Revised Design. Elevation and plans. Mr. Edwin Cooper, F.R.I.B.A., Architect.

ARCHITECTS AND THEIR RESPONSIBILITIES.

The old case of "Minter v. Waldstein" seems to have become an obsession with the R.I.B.A. The flogging of a dead horse appears to have unexpected attractions for many minds that might otherwise be engaged upon discussing something more worthy. As we reported last week, Mr. William Woodward read a tremendous paper at an extra meeting of the Institute, and there was a discussion. But we cannot help thinking that the President, in summing up, hit the bull's-eye when he said, "For himself, he should like, if possible, to forget this unfortunate case." He had listened to the paper and the debate, and we do not wonder that, in very weariness, he expressed his longing to forget the whole affair. He also remarked, with wisdom, that "a little learning was a dangerous thing," and left it at that. But we need not go beyond the paper itself to find an answer to the whole of this long debating, for the author himself concluded with these weighty words: "Our present Conditions of Contract do not provide in any way clearly for the settlement of these troubles, and it becomes day by day more urgent that those Conditions of Contract should be revised, for the protection alike of client, architect, and builder." Well, we have said the same thing recently in various articles, and have given legal reasons for so saying; while at a former meeting, at which this awful arbitration was gone into elaborately, the solicitor to the Institute rubbed in his point that badly-drawn and obsolete forms of contract were the root of the evil.

We do not think much is gained by talking of the "new," or even the "newer," responsibilities of architects. There is really nothing new in the matter at all. These responsibilities are as old as the law of principal and agent. The only thing new about the business is the awakening of some architects to the existence of that law. An architect who has always regarded himself as the principal in everything, and everywhere, naturally suffers a sort of shock when, in the cold language of the law, he is held to be only an agent. He at once cries out that this is not according to his view of the contract under which he has been working. But then a contract is not a code of law or a public statute. It is merely a form of words that has to be construed by judges, who abide by long-established legal principles, and apply to their construction a long line of decided cases. The worst of these papers and discussions is that they

are never-ending and lead nowhere. It may be an exercise of professional intelligence to discourse at large upon the evidence given in a particular arbitration case, where each successive speaker can air his views upon the "newer responsibilities," and can also suggest how much better he would himself have carried out the job. But there is no guiding or general rule or result to be got from going over the passing facts of a dead dispute in which only the parties concerned were really and actually affected, and from which nothing of practical value can be deduced for future application. It seems strange that a whole evening should be again spent in ploughing such old sands.

The attitude of the artistic mind to the courts of law is well shown by one remark in this lengthy paper, where we are told that "the judge was apt to strictly construe the letter of the clauses in the specifications, without inquiring into, or professing to ascertain, what were the requirements of the case." Well, what are the judges for but to decide between the parties upon the disputed meaning of a document which has been written out with letters to govern their rights and responsibilities? If the architects' views of the "requirements of the case" are to settle everything, why trouble about contracts at all? A good autocrat is the best of all rulers, and an omnipotent architect who is his own arbitrator would doubtless do very well, presuming that everyone under him was willing to obey. It is assuredly the height of wisdom to keep out of the courts and away from the law and the lawyers, if it can be done. But it is not much use complaining of our judges for applying the law in a legal manner. Possibly the true inwardness of this latest and lengthy paper upon our stock case may be found in an illuminating observation thrown out by the author near the beginning, where we read that in these degenerate days "the client obtrudes his views as to what should and should not be done by the architect," which was not so in the good old days of long ago. Well, to the commercial mind of our generation, one answer would be that, after all, the client pays. Another view may be that when a man builds himself a house to live in, he should have some little say in the sort of home he wants. Doubtless this is mere Philistinism; but it is as well sometimes to remember that even clients, as building owners, are human, with all the defects of their nature, and often grievously lacking in sympathy with the artistic temperament.

We cannot help saying that all this

outcry about the new and newer responsibilities is not very dignified, or worthy of a profession that must labour to live. Nor can we see much use in lamenting the "rush" or "hustle" of work nowadays, or explaining over "the hurry of modern building." Other professions do not claim the leisure of mediæval times in which to carry on the duties of their state. We have long passed the era when a century or so did not much matter in architectural affairs. Nor is it even now quite certain that the long delays in building, say, cathedrals, was at all an advantage. It is sad to say so, but we fear that our architects must learn to live according to the temper of their time, and not seek to pre-empt as belonging to one of the "great periods" that has long ago passed away, with many other unrecoverable things. But to come back to the law and the contract. It has often been said from the Bench that common law is common sense, and a very sound saying that is. The common-sense way of drawing up a contract is to provide, as shortly and simply as possible, for the work that is to be done, and to throw overboard all those tricky clauses which have gradually got elaborated into formal provisions that nobody reads or understands. As we have said before, traders who know what they want to sell, or to buy, have no difficulty over their contracts. Nor do they have any tedious troubles in regard to their arbitrations. If the Committee of the Institute, which is still said to be sitting upon its official Conditions of Contract, will only adjourn indefinitely, and send their solicitor instructions to draw up what he thinks necessary, some progress would be made towards a common-sense solution of what now seems to puzzle a whole profession.

BRICK ORNAMENT.—VIII.

FRIEZES.

Next to the cornice, and in combination with it, the frieze forms one of the most important of architectural features, requiring careful study to produce effective results in due proportion to the general mass and height—a matter often somewhat difficult, with the many limitations imposed by the practical necessities of the requirements attached to much modern work, usually further influenced by cost, to some extent. With the possibility of a good, bold cornice, even if only on plain lines, as shown in the article devoted to that section, a little carefully-studied work introduced in the frieze makes a great deal of difference to the appearance of any structure, both from a general architectural point of view and a decorative one. Correct architecture is

only a matter of light and shade, and of the
 400 artistically applied, colour pattern
 work, coming after an interval, but never
 losing, extremely valuable necessary for

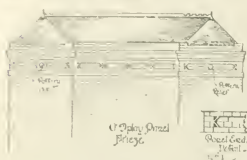


FIG. 1.

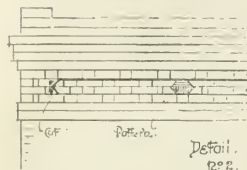


FIG. 2.

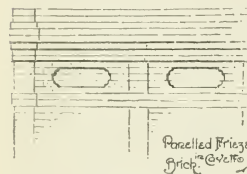


FIG. 3.

further ornamentation, or as a connecting
 link with the former. The systems of raised
 and sunk work therefore form the most
 effective methods of decoration to most archi-
 tectural features, the frieze included. That

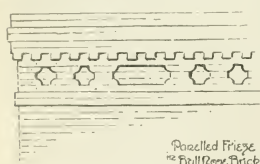


FIG. 4.



FIG. 5.

giving the best results, and which proves the
 most adaptable in real architectural lines
 for such a position, requiring narrow and
 high treatment, are the various systems of
 panelling. With many classes of structure
 which have to be largely plain, owing to the

"limitations" imposed, merely the slightest
 decoration in relief is admissible. In these
 circumstances one of the most effective
 positions is satisfactorily introduced such is
 undoubtedly the frieze. Quite a large degree
 of real architectural effect and finish can be
 given to a building by many of the simplest
 methods of panelling on broad lines. Any
 decorative work, too, introduced for these

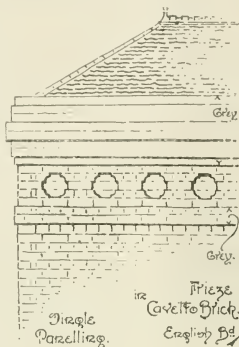


FIG. 6.

purposes should be preferably put into the
 frieze. In this position, even in conjunction
 with a very plain cornice, it proves far more
 effective than spending the whole of the avail-
 able "limitation" on the latter feature in the
 production of something highly decorative,
 elaborate, or ornate. In the first illustration
 is shown a simple design in splay panel-work
 on broad lines, the cost of which would prove
 very little more than that of plain brick-
 work. Something of this type might be
 readily adapted to most buildings which are
 either wholly devoid of architectural treat-
 ment or merely have something startling

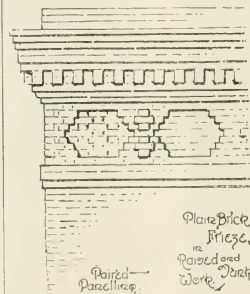


FIG. 7.

inserted, such as arches, courses, or plinths,
 etc., in blue bricks; gable ends filled in as a
 beautiful set of blank brickwork windows,
 by way of decoration. In the latter position
 carefully used raised and sunk work, not
 necessarily panelling, would prove of no more
 expense than "brick windows," more often
 not so much. These principles apply to
 several large classes of buildings erected
 annually, to such an extent that, in all
 probability it might be termed enormous,
 comprising factories, warehouses, workshops,
 stores, depots, and other general commercial
 premises of many descriptions, apart from a
 good deal of residential. "Brickwork
 windows" especially have always proved

something of a mystery. Possibly their
 originators possess X-ray eyes and imagine
 everyone else has them, too. Such features,
 essentially false, are amongst some of the

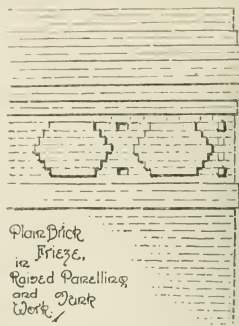


FIG. 8.

worst "fashions" of bad art in architecture.
 In place of "decoration" by these types it
 would be far better to substitute some of the
 simplest methods of brick ornamentation,
 more especially when we consider that a great

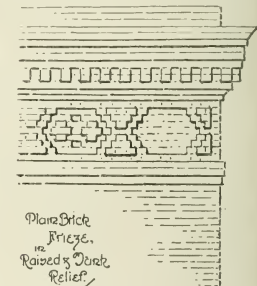


FIG. 9.

deal of it can be carried out in the natural
 band, without any variation. Some of the
 many systems of panelling can be quite
 cheaply introduced once the pattern is set

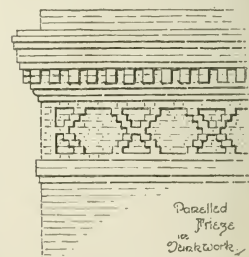


FIG. 10.

with the end bricks in elongated panels, such
 as shown by Figs. 1, 2, and 3. Fairly long
 single panels, in bays formed by plain
 plasters, afford a fair amount of enrichment

to an otherwise plain wall face. Small double panels, alternated with longer single ones, as illustrated by No. 4, or alternated, as shown in Fig. 5, tend to break up the monotonous

Here the narrow type of small moulded panel, either single, double, or elongated, proves useless, unless massed or clustered, etc. The latter method, in some instances, can be made very effective; but, as a rule, a bolder system of panelling is essential for bolder and larger structures. The least expensive methods which can be adapted to this branch are those of stepped panelling, mainly in the regular bond, merely requiring the introduction of an occasional header in the stretching course if in English bond, or in place of a stretcher when in Flemish. These

usually lost in either system by overcrowding pattern work. A far heavier type of panelling is shown by Fig. 12, finished at each end with the elongated spandrel, small

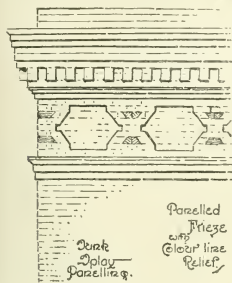


FIG. 11.

otherwise formed by confining work to one particular size pattern. On a fairly short length repetition, as shown by the single panelling in No. 6, looks well enough. Such

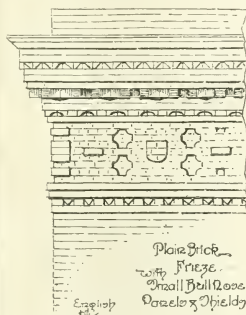


FIG. 14.

varied bricks, however, break joint readily enough with the course above and below, as illustrated by the sunk stepped panels in Fig. 7. A more massive effect is obtained by the raised stepped panel, as shown in the succeeding illustration, No. 8. The large sunk or raised stepped panel can be still further decorated with the various forms of small sunk or raised patterns previously illustrated, and as shown by Fig. 9. Such smaller patterns, though, have a better appearance in a long frieze when executed in low tones

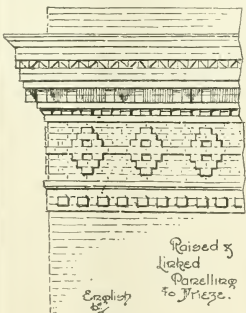


FIG. 15.

of colour relief alone, thus conveying a broader feeling to the whole structure by means of the panelling, this effect being somewhat broken if the latter is too much cut up. Fig. 16 illustrates the effect of the sunk stepped panels and spandrels, as contrasted with the raised spandrels in the previous illustration.

Clean line panels can be more readily formed by means of the eplay than with ordinary bricks, after the system illustrated in Fig. 11. The introduction of very slight lining reliefs are an added improvement, and these are all the better for being kept restrained, as shown by the latter figure. A large amount of real effect and value is

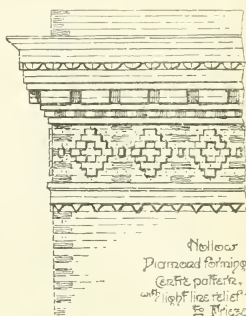


FIG. 16.

raised spandrel pieces being introduced between each pair of panels and at the corners of the building. Such panelling can, of course, be as readily formed in sunk work, also in

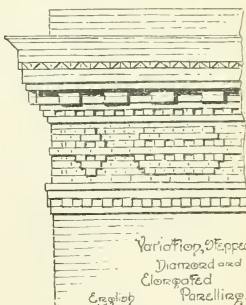


FIG. 17.

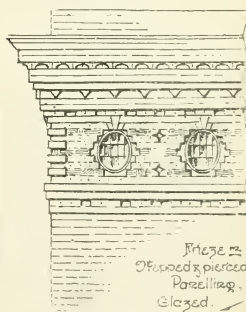


FIG. 18.

longer lengths, when, with the spandrel pieces, the general effect obtained on a building is much the same as that illustrated by Fig. 1, at the commencement. The small detail on Fig. 12 shows how such a system

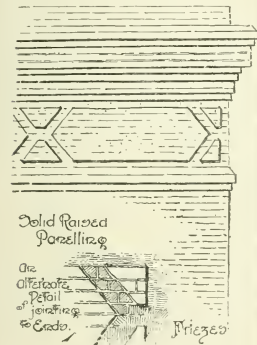


FIG. 12.

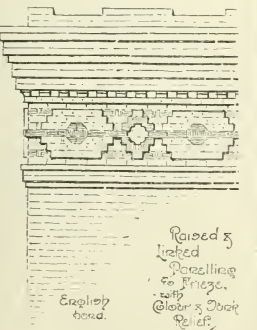


FIG. 13.

features more often prove of considerable length when variation gives a better result. For bolder work on larger and lofty buildings a different type of panelling is necessary.

the top can be readily formed with
the various bases, thus dispensing with
the need of a separate base. Figure 18 illustrates the system of
the frieze, and the method of punching, as applied

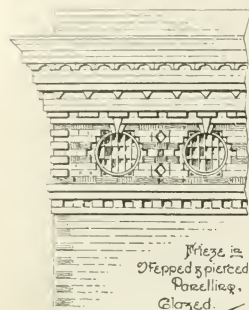


FIG. 19.

to frieze work. Many varieties of colour
patterns, combined with lining, can, of
course, be employed in these positions beside
those indicated. With more elaborate types

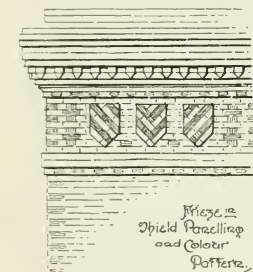


FIG. 20.

of cornice the frieze is far better kept
somewhat restrained by a lighter form of
ornamental pattern work, more of the
character indicated by Fig. 14. An example

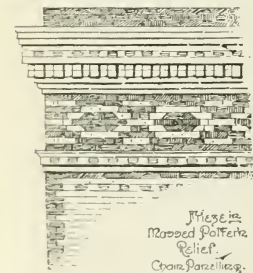


FIG. 21.

of colour and into diamond panelling is
shown in Fig. 19. A most effective manner of
decorating the frieze is by grouping two or
three panels, as suggested by Fig. 16, alternating
them with a larger plain panel of their own

length, somewhat after the style shown by
No. 17. The design in Figs. 18 and 19 illus-
trates the introduction of oval and circular
windows in a series of perforated square
panels, the frieze itself being further
enriched with rusticated angles, low tones of
slight colour lining, and a little sunk relief
at intervals. Although the windows so
arranged are something of an innovation, they
would produce an extremely picturesque
effect, as will doubtless be noted from these
illustrations. The shield panel is another
feature which adapts itself most admirably to
frieze work. Groups of panels, well set, in a
carefully studied design, are capable of
proving the medium of some really beautiful
work, especially when further studied in con-
junction with colour, pattern, and lining with
regard to tone effects, somewhat after the
nature of Fig. 20. Many other patterns adapt
themselves readily to the shields and also the
frieze, in combination with them. Figs. 21

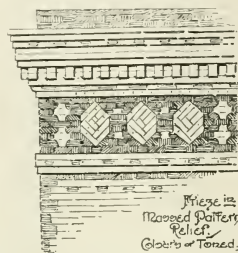


FIG. 22.

and 22 illustrate in a couple of rough sketches
two designs which show the use of massed
background work, as applied to the frieze.
This type of brick ornament is productive of
a somewhat heavy class of relief, nevertheless
forming extremely strong and bold types in
pattern-work. Elements, although not suited
to every class of structure, would be a con-
sideration, and prove specially applicable to
certain kinds of building. The principle of
applying many such designs to the frieze and
adapting them to the general requirements of
the building, both in massed background relief,
as shown, or in the department of massed
pattern relief, will no doubt be readily
enough followed and grasped. Other designs
specially illustrating this branch of applica-
tion are, therefore, hardly a necessity. Some
of the simpler combinations of massed lining
as well as extremely useful forms for a
modified type of frieze, in conjunction with
simple plain cornices composed of a few over-
sailing courses.

W. G. KERRY, Architect.

REINFORCED-CONCRETE BUILDINGS.

By WM. G. SHIPWRIGHT, Licentiate
R.I.B.A., M.C.I., and Chartered Surveyor
(Building by Exam.)

TWO FACTORIES IN LOWER CLAYTON ROAD
AND RIDLEY ROAD, HACKNEY.

Messrs. John Hamilton and Sons,
Architects.)

The second example (referred to in the
previous issue) is Messrs. Taverer's factory,
erected in Ridley-street, Hackney, and the
ground-floor plan illustrated in Fig. 15, shows
the columns and beams of the first floor. It
will be seen that a cross-wall divides the
building into the two sections (illustrated in
Fig. 14), which are roughly 4,000 and 3,000
feet super, respectively. In the larger of
these a central row of four columns (A)
support the line of beams Nos. 2 and 3, and
each alternate beam No. 1, each column
thereby sufficing with the support afforded
by the piers in the external walls to carry a
floor area of 1,000 superficial feet. These
columns are of the type shown in Figs. 16 to

21, and differ from the illustrations of the
building given in the previous issue, by the
massing of four rods in the interior of the
column on the three lower floors. These
are 8-in. square on the third floor, 13-in.
square on the second floor, 18-in. square on
the first, 21-in. on the ground floor (Fig. 18),
and 24-in. square in the basement (Fig. 19).
An enlarged detail of the connection at the
floor under consideration is given in Fig. 17.
The detail at point D clearly illustrating the
junction of the different lengths of rod by
means of the thimble and the manner in
which the beam rods are lapped and bent at
the point of junction with the columns.
Detail CC (Fig. 19) also shows a good form
of linking the rods in large columns. The
foundation is 8ft. super, constructed in a
similar manner to the example (already illus-
trated in the previous issue in Fig. 13),
heavier reinforcements, however, being pro-
vided in a close lattice of small rods and
vertical stirrups placed in similar positions
to those in the detail in question.

The floors in this case are 5-in. in thickness,
the loading being taken at 3-in. per foot
super, inclusive of the principal beams
employed are illustrated in Figs. 22 to 25,
these details being applied as in the previous
case, with only slight variations, to all the
floors.

Beams No. 1 (Fig. 22) are provided in the
positions indicated on the plan. They each
support a floor area of nearly 400 superficial
feet, and have a total depth, inclusive of the
floor, of 22-in., the width being 7-in. Tensile
reinforcement of twin rods only is employed,
illustrated in the enlarged section.

The beams (No. 2) which support each
alternate pair of beams, No. 1, as central
concentrated loads and a proportion of the
floor as a distributed load, are illustrated in
Fig. 23, the effective spans being varying from
16ft. 7-in. to 10ft. These beams are 24-in.
(inclusive) depth and 8-in. wide. The tensile
reinforcement being similar to that of No. 1
beam, but including additional stirrups to
provide the required shear resistance.

The complete bond secured in the wall
lintel by linking the respective sets of rods
as illustrated in section in Figs. 22, 23, and
24.

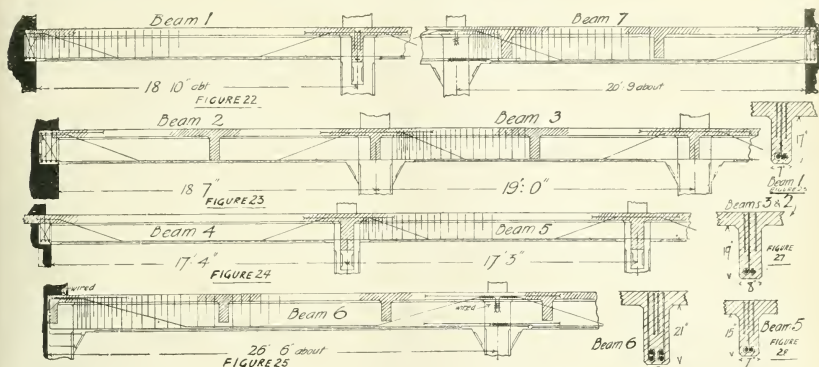
The series of beams and columns is so
arranged in the smaller section that only two
intermediate supports are required, each of
which assist in carrying over 1,500 superficial
feet of floor area on each floor. Beams Nos.
4, 5, 6, and 7, transmitting the loads from
various parts of the floor to the columns and
walls. Beams Nos. 6 and 7 are supported
bearing upon the columns, and the former of
these shown in Fig. 25, having effective span
26ft. 6-in., are 26-in. deep, including the floor,
and 9-in. wide, with dual sets of rods. The
upper part of each pair is cranked at the
points of contra-flexure, and, passing into the
upper part of the beam just anterior to the
points of support, are bent downwards into
the body of the column and secured and
reinforced than the other beams in the
building, are remarkable achievements of
design, having regard to the span and
loading.

Beams No. 7, having an effective span of
21ft., assist in supporting four of the cross-
beams, Nos. 4 and 5, as concentrated loads,
in addition to the distributed load from
portion of the floor coming directly upon
them. Twenty-four inches deep and 8-in. wide,
they are provided with a single pair of rods
as tensile reinforcement. The arrangement
of the rods provide secure bonding into the
wall lintel, as shown in the detailed figure.

Fig. 24 illustrates the cross-beams Nos. 4
and 5, which are 20-in. deep and 7-in. wide.
The span being 17ft. 3-in. and 4-in.
respectively.

The two columns in this section of similar
detail to that of column "A" (Figs. 16 to 21)
and of practically the same dimensions.

Graded concrete has been employed for
both buildings, and it is proposed to apply a
test similar to that given in the previous
issue to the building which is the subject of
this article. This factory affords another
excellent illustration on an entirely
differently-shaped site to that previously
considered, of the possibility of designing

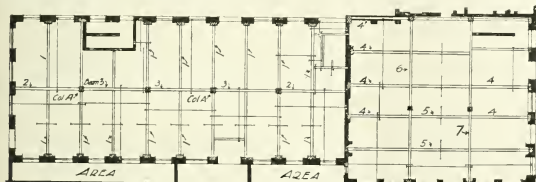


reinforced work with an economy of material and an impediment to useful floor space which is certainly not greater than that entailed by ordinary steel-and-concrete con-

struction with Bradford's Granolithic, giving a remarkably hard, clean surface.

The elevations are built in stock brick, with cream artificial stone dressings, manu-

consideration before their application to all cases may be deemed final. Even purely aqueous material does not render structures submerged in it buoyant. A man, for instance, will sink in quicksand because what may be called the area causing buoyancy is reduced by contact with solid material. It is also well known that tunnels under the North and East Rivers were not buoyant, whereas the material under the North River was at times so aqueous that during construction it tended to flow in almost like water, and in many cases the doors were not opened even for the advancement of the shield. In the semi-aqueous material of the East River the tunnel, though theoretically buoyant, always sank when the material around it was disturbed, and the history of the North River tunnels showed the same condition. On the other hand, floors have been known to burst up under pressures, while other floors, admittedly not strong enough to resist full pressure over the whole area, have done so without any evidence of failure. In considering the subject properly, study should be made of structures fulfilling one of the five following conditions in materials of one of the three classes noted: (1) Structures wholly buried. (2) Structures partially buried. (3) Structures whose floor areas are an integral part of the foundation. (4) Structures whose floor areas are not an integral part of the foundation. (5) Masonry dams. The history of tunnelling, to which some reference has been made, and of all braced structures, conclusively proves that buried structures are not buoyant. It is believed that a partially buried structure can be designed to resist buoyant pressure providing it is designed with a small margin of excess weight above that shown under the theory noted in this paper. As, however, no engineer will design a bridge without a reasonable factor of safety, so no one should fail to provide against contingencies, even though convinced that they may not arise. Therefore the writer concurs with those who are of opinion that the design of partially buried structures should provide against full upward pressure. As to those floor areas which are an integral part of the structure foundation, it is readily seen that, being part of the foundation, they must bear on the solid material and must, therefore, have some of the area exposed to upward pressure reduced. On the other hand, those floors not forming a part of the foundation may be called upon, in certain classes of material, to resist full upward pressure. As to the masonry dams, it is not possible to consider such structures resisting full or even a large percentage of full upward pressures, unless built on materials so porous that their being built thereon would be an absurdity. In considering all these conditions, it must be noted that the conditions under which a structure is built, or, rather, those obtaining during its



- Plan of Ground Floor showing first floor beams -

FIGURE 16

struction, the depth and space occupied by the beams being in most cases rather less than would be required by encased steel girders in similar positions. Systematically schemed and designed, reinforced concrete is

factured by Messrs. Bradford and Co., who are also the contractors for the reinforced work, the builder being Mr. W. Nash, of Deptford.

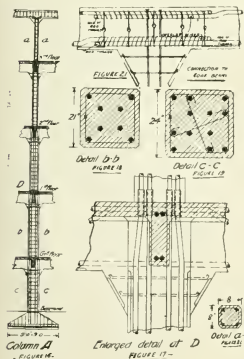
NOTES AND EXPERIMENTS ON EARTH PRESSURES.*

By JAMES C. MEEM.

(Concluded from page 808.)

Coming now to the detailed consideration of Class B, that of semi-aqueous materials, which constitute by far the larger class, the writer is of the opinion that they should be treated in the same way as firm or Class A materials, except that the larger proportion of aqueous material should be given due weight. Thus: If such a material when dry is found to contain 50 per cent. of sand and 50 per cent. of clay or finely divided material, and 20 per cent. of voids, then it should be treated, when saturated, as a material of which 50 per cent. was solid and 70 per cent. was aqueous; that is, an excess percentage allowance for the aqueous should be made before proceeding, as heretofore noted. The determination of these factors need not in any case be left to guess-work or chance, but can be definitely established, as can also the angle of repose when the material is dry and when it is wet. With these factors and others determined by experiments on a large and comprehensive scale the engineer can proceed with safety along the general lines proposed or as modified by the results of the experiments. As to the question of buoyancy, and assuming that the experiments cited have been conclusive, there are still many elements for

consideration before their application to all cases may be deemed final. Even purely aqueous material does not render structures submerged in it buoyant. A man, for instance, will sink in quicksand because what may be called the area causing buoyancy is reduced by contact with solid material. It is also well known that tunnels under the North and East Rivers were not buoyant, whereas the material under the North River was at times so aqueous that during construction it tended to flow in almost like water, and in many cases the doors were not opened even for the advancement of the shield. In the semi-aqueous material of the East River the tunnel, though theoretically buoyant, always sank when the material around it was disturbed, and the history of the North River tunnels showed the same condition. On the other hand, floors have been known to burst up under pressures, while other floors, admittedly not strong enough to resist full pressure over the whole area, have done so without any evidence of failure. In considering the subject properly, study should be made of structures fulfilling one of the five following conditions in materials of one of the three classes noted: (1) Structures wholly buried. (2) Structures partially buried. (3) Structures whose floor areas are an integral part of the foundation. (4) Structures whose floor areas are not an integral part of the foundation. (5) Masonry dams. The history of tunnelling, to which some reference has been made, and of all braced structures, conclusively proves that buried structures are not buoyant. It is believed that a partially buried structure can be designed to resist buoyant pressure providing it is designed with a small margin of excess weight above that shown under the theory noted in this paper. As, however, no engineer will design a bridge without a reasonable factor of safety, so no one should fail to provide against contingencies, even though convinced that they may not arise. Therefore the writer concurs with those who are of opinion that the design of partially buried structures should provide against full upward pressure. As to those floor areas which are an integral part of the structure foundation, it is readily seen that, being part of the foundation, they must bear on the solid material and must, therefore, have some of the area exposed to upward pressure reduced. On the other hand, those floors not forming a part of the foundation may be called upon, in certain classes of material, to resist full upward pressure. As to the masonry dams, it is not possible to consider such structures resisting full or even a large percentage of full upward pressures, unless built on materials so porous that their being built thereon would be an absurdity. In considering all these conditions, it must be noted that the conditions under which a structure is built, or, rather, those obtaining during its



shown by these two examples to certainly offer great facilities for this type of construction.

The floors have been finished throughout

* A paper read before the Engineers' Club of Philadelphia.

construction, are vastly different from those which eventually obtain—i.e., in connection with subaqueous tunnelling it has been often noted during construction work, owing to the potential loss of air and stirring up of material, that the material was in a "loopy" condition, whereas soundings before the beginning of work and the stability of the sediment afterward tend to show that the material before being disturbed was firm and hard, as it likewise became after the disturbance ceased. It is also well to note that water through the ground is constantly flowing along minute channels, and that as it flows into and through an abnormal void, it finally fills it with the finer material obtained elsewhere. It is probable, therefore, that the abnormal voids will not long continue to exist in contact with any structure, except in possibly isolated instances, in very heavy material, such as gravel, and where protected, as in those cases noted where the foundations surround and extend below the floor area, and in allied cases. While the question of pressures on shafts presents some anomalous conditions, in dry material it can probably be considered in the same way, or rather in direct relation to the pressures on grain-bins; i.e., if one assumes that a grain-bin carries a centrally located pipe-shaft, one must conclude that the pressures on the shaft bear some direct relation to those on the bin itself, bearing in mind that true pressures are intensified by their concentration. Another element, however, comes in to offset the effect of some of this pressure, i.e., the horizontal arching properties of the material; and it is not possible to determine this conclusively except by experiments on a large scale. In general, one may assume that the sides of small shafts up to five or six feet, in normally dry material, will not be subject to excessive or increased stresses due to increased depth, as the horizontal arching action of the material establishes a constant pressure beyond depths equal to four or five diameters of the shaft. The writer has supervised the sinking of numerous pits from four to six feet in diameter, for depths of from 20 to 35 ft., and has never seen in them any evidence of increased pressure due to depths. When the proportion of a shaft becomes greatly enlarged over the above figures, the pressures may be considered to be generally the same as those in trenches. In aqueous and semi-aqueous material over a percentage of the area, the pressure of the water must be added to that of the solid material, as already noted. The resistance of earth in its relation to the foundations of structures is a subject too broad to be considered here. The questions relating to either piling or caissons, which are essential elements of foundations in aqueous or semi-aqueous materials, might, with difficulty, be encompassed in the limits of papers devoted exclusively to either. The writer wishes merely to emphasise the fact that in ordinary firm materials, such as sharp sand or gravel, or a mixture of both, we do not attach to the resistance of foundations sufficiently high values. The fact is lost sight of that, when a reasonable depth of foundation is reached, the resisting power of firm material is increased, not so much because the material is more compact at great depths, but because the opportunity for lateral displacement is eliminated. A test has been made in which a 16-in. hollow pipe was cemented into its shaft, and a 14-in. piston placed therein, in which, at a depth of 77 ft. below the curb, or 37 ft. below ground-water, the piston supported 28 tons without further settlement, after an initial settlement of about 2 in.; while under a load of 15 tons the following observations were made, the material being ordinary sand—

| Load, tons | Depth below curb, ft. | No. further settlement after the initial of in. |
|------------|-----------------------|---|
| 10 | 10 ft. | 0.00 in. |
| 15 | 20 ft. | 0.00 in. |
| 15 | 37 ft. | 0.07 in. |

While not conclusive, this test would tend to show that depth does not necessarily add to the stability of the ground. Tests have also been made on a 14-in. hollow pile in firm water-bearing gravel, in which a

measured, circumferential area of 63 sq. in. resisted a measured load of 60 tons, with no initial observed settlement. Conclusions follow that any foundation on firm ground, deep enough to be guarded against and protected from lateral displacement, can be compacted by ramming or by driving short piles into it, or, if possible, by subjecting it to excess weight, to avoid the usual initial settlement due to compaction, and that it will then, without further settlement, resist pressure greatly in excess of that usually allowed. Before concluding, the writer wishes to note a few observations and reasons for his belief that the general principles outlined in this paper are true. In the first place, it is assumed that ground pressures are not subject to the same laws as aqueous pressures. If this were not true, it would be impossible to excavate deep trenches or tunnels, even in dry ground, without air-pressure. Not only is it possible to work safely at great depths in tunnels and trenches, but anyone familiar with such work must realise that the bottom or floor of a deep tunnel or trench exposed for a large area is a dry ground, devoid of pressure, and that the ground. The fact that pressure is not transmitted directly to the exposed bottom should be conclusive proof that arching action does exist in earth. It is also true that coffer-dams can be sunk to great depths in coarse sand or gravel adjacent to deep bodies of water by means of pumping—i.e., without air-pressure. Showing that the presence of water alone does not give aqueous properties to some materials. If, then, the arching action of normally dry earth exists to some degree, as shown by the experiments, and in countless other instances, and if it exists to a large degree, as shown by the fact that deep excavations or tunnels can be safely made—as safely as those at shallow depths—then it is not difficult to see as a practical factor and not rather as an occasional freak of nature? The writer has never seen an instance in which the pressures in normally dry ground were greater than those accounted for in the body of this paper, and he can further give numerous observations showing conclusively that the pressures were not in excess of those allowed for normally dry earth, i.e., loams, sand, gravel, or some mixture of these. It will be necessary, however, to note but one or two here. The writer's attention has often been called to, and he has frequently examined, tunnels and large sewers in which the roof arches had cracked under pressure—one in particular, that of a cast-iron lined 15 ft. tunnel, the arch of which was broken away after the passage of this shield. The writer believes that all these conditions—certainly those observed by him—can be explained by the fact that, on backfilling structures in trenches, or after the passage of the shield in tunnels, voids were left along the sides, and the normal subsidence of the ground above forced out the sides or the roof of the tunnel at the point indicated. In all these cases it is that the cracked arch sustained the ultimate loading, which had apparently been so great as to cause the initial rupture of the sound arch, and yet many engineers hold that the arching conditions may exist for a time, but eventually the full superimposed loading will come upon the structure. The writer holds that the arching properties are most effective when there is no further possibility of subsidence. Another observation: The grade of the Jerusalem Street approach to the Battery Tunnel was corrected above the water-line by cutting out sections of the bottom and lowering it from one to two feet, while in the roof 1 ft. by 10 ft. sections were cut out and jacked up 30 in. for long distances, and the excavation of the bottom was accomplished by digging out, as in the ordinary trench work, after bracing the tunnel, while the roof plates were jacked up into the voids caused by displacing small quantities of sand around the exposed edges and through weep-holes. This work could not, of course, have been done had the full weight of the ground above been generally applied, and even upon the full area of the roof of the tunnel. As to deep trenches, the writer has often seen bracing carried near the top of a trench to

such an extent that it had to be reinforced, due to the fact that the trench was being deepened at that point. To use in a 30 ft. sand trench bracing just strong enough at a point 15 ft. down, and not strengthen it on excavating the same trench to a depth of 60 ft., would be suicidal, whereas at a point 10 ft. above the bottom of a 60 ft. trench bracing need not be any heavier than that 10 ft. up from the bottom in a 30 ft. trench, always assuming that the sand is normally dry. The danger of deep tunnelling or trenching lies not in the normally dry, homogeneous materials, or even in firm ground when saturated, but it is rather due to the pockets of so-called quicksand, or "near quicksands," and to the treacherous soft clays, or those with well-defined seams of soft material, along which they tend to slide in mass. In rare instances, even in rock, pressures may be found to be greater than in soft ground, where the stratification is vertical, or where pockets of disintegrated rock become detached from the solid mass around them. The writer desires, however, to emphasise the writer's belief that the conditions necessarily, but that they are as likely to occur in tunnels in shallow depths as in those at very great depths; and to emphasise the original observation, that the greater the angle of repose in firm materials, the greater the pressure on a tunnel structure. Finally the writer reiterates that the writer is possible the engineer will experiment on a large scale and note, wherever practicable, the results of observations which may be of value. As he has already stated, to be of real value experiments must be made on full areas, and not on those which are a small proportion only of that affected. Many of the experiments here noted are more fully described in the writer's paper, "Pressure, Resistance, and Stability of Earth," published in Volume LX. of the "Transactions of the American Society of Civil Engineers," and much of the matter of this paper is transcribed therefrom in substance. The writer desires to thank Mr. Frederick L. Cranford and Mr. James W. Nelson for valuable assistance and for apparatus for making the experiments noted.

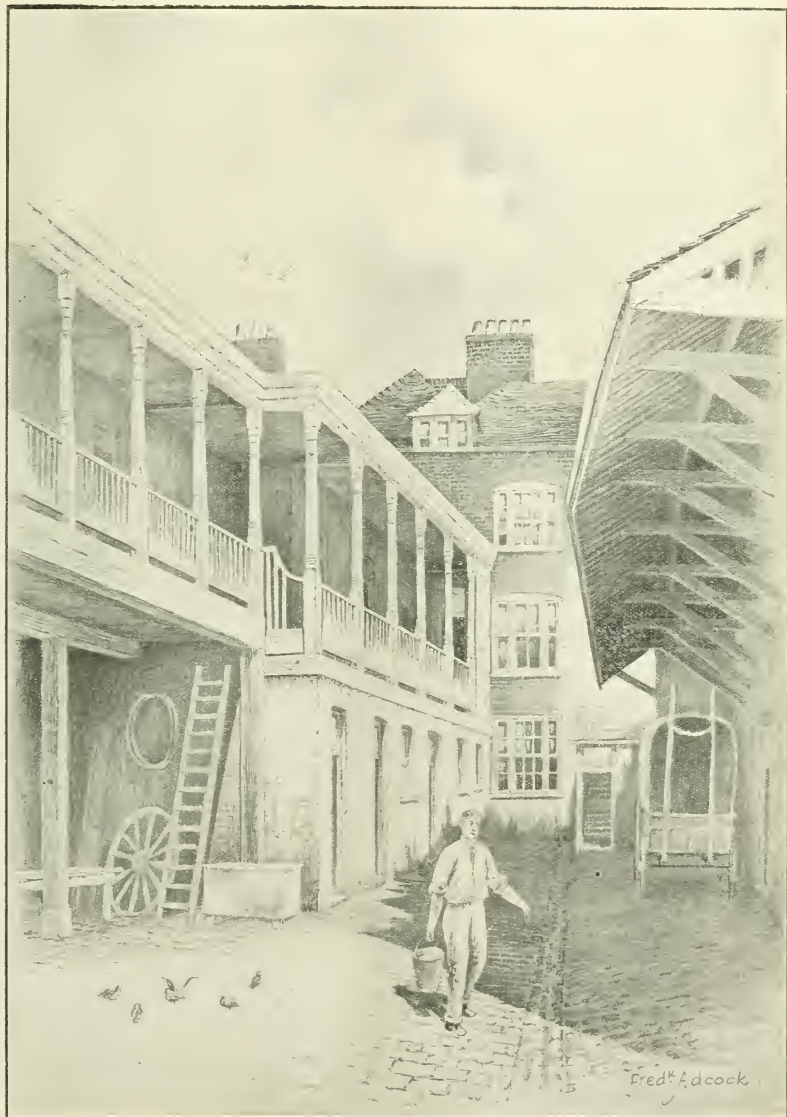
OLD GALLERED YARD, THEOBALD'S ROAD, W.C.

This interesting group of old buildings adjoins the Harpur Arms, Theobald's Road, W.C. Most of the blocks on Old London give the George, Southwark, as the last of the galleries in-vary in London; the existence of this old yard in London is due to a happy oversight. Although not such a good example as the Southwark inn-yard, and apparently of a later date, these old buildings make a pleasing and picturesque group. **FREDK. ADCOCK.**

The Warrington Board of Guardians have adopted plans by Messrs. W. and S. Owen of that town, for an infirmary for imbeciles and epileptics. The estimated outlay is £12,666.

By command of the German Emperor, a conference presided over by his Majesty, and attended by Ministers of the departments concerned, the Chief President of Brandenburg, and representatives of the Union of Greater Berlin, was held at the Royal Castle, Berlin, on Tuesday, to discuss a plan, the object of which is to preserve in perpetuity the continuous belt of woods and open grounds around Berlin as now enclosed from the trolley lines of the city. The idea is that to this end the Union should acquire the Crown lands, and a basis was found for further negotiations.

At Tuesday's meeting of Ayr Town Council, reports were submitted from the burgh surveyor and the tramway manager on the proposed extension of the electric tramways to the new racecourse by means of the trolley or railless system of traction. The surveyor estimated the cost at £4,164, and the tramway manager at £4,007. A recommendation was made by a committee that this system should be adopted on the basis of the officials' reports was also submitted. It was, however, eventually agreed, by ten votes to seven, without discussing the recommendation to the Council, to extend the trolley rail system at a cost of between £16,000 and £18,000.



GALLERIED YARD ADJOINING THE HARPUR ARMS, THEOBALD'S ROAD, W.C.

THE R.I.B.A. ANNUAL ELECTIONS.

In the business meeting of the Royal Institute of British Architects held on Monday evening at 9, Abchurch-lane, W., the President, Mr. Leonard Horley, after the results of the elections of members of Council and Standing Committees, as reported by the scrutineers, was announced as follows—

MEMBERS OF COUNCIL.

President: *§Reginald Blomfield, A.R.A., M.A., F.S.A., Vice-President.

Vice-Presidents (four seats, six nominations): *Alfred William Stephens Cross, *Edward Guy Dawber, *George Hubbard, F.S.A., *Ernest Newton, A.R.A.

Hon. Secretary: *§Henry Thomas Hare. Members of Council (eighteen seats, thirty-six candidates): *Arthur William Brewin, *Max Clarke, *Thomas Edwin Cooper, *William Dunn, *Frederic Richard Farrow, *William Flockhart, *William Adam Forsyth, *James Sivebright Gibson (past Vice-President), *§Henry Vaughan Lancaster, *Charles Stanley Peck, *Sydney Perks, F.S.A., *Samuel Perkins, *Charles Thomas Pomeroy, *Quennell Pryor, *Alfred Richards, *Walter John Tapper, *William Henry White, *Edmund Walter Wimperis, *§William Woodward.

Associate Members of Council (six seats, fourteen nominations): *Kensington Gammell, *§Sydney Kiffin Greenlade, *Edwin Gunn, *Alan Edward Munby, *§Septimus Warwick, *Arthur Needham Wilson.

Past Presidents (two seats): *§Sir Ernest George, A.R.A., *§Leonard Stokes.

Hon. Auditors: *§John Hudson, *§William Henry Hart.

Representatives of Allied Societies (nine seats, nine nominations): *John Brooke (Manchester Society of Architects), *William Milburn (Northern Architectural Association), *Alexander Nisbet Paterson, M.A. (Glasgow Institute of Architects), *Arthur Clyde (Aberdeen Society of Architects), *Charles Edward Bateman (Birmingham Architectural Association), *Ernest Richard Eckart Sutton (Scottish Architectural Society), *Alexander Lorne Campbell (Edinburgh Architectural Association), *§John Alfred Gotch, F.S.A. (Northampton Association of Architects). Representative of the London Architectural Association: *§Gerald Callcott Horsley.

MEMBERS OF THE STANDING COMMITTEES.

Art Committee.—Fellows (ten seats, sixteen nominations): Edward Guy Dawber, *William Flockhart, Henry Thomas Hare, *Gerald Callcott Horsley, *Thomas Geoffrey Lucas, *Ernest Newton, A.R.A., *Edwin Alfred Richards, John William Simpson, *Henry Heathcote Statham, *Arthur John Tapper. Associates (six seats, seven nominations): Ormond Maxwell Ayrton, Matthew James Dawson, *Sydney Kiffin Greenlade, *John James Joass, *Septimus Warwick, *Arthur Needham Wilson.

Literature Committee.—Fellows (ten seats, fifteen nominations): *John Alfred Gotch, F.S.A., *William Curtis Green, David Barclay Niven, *George Holborn, *Edward Pryor, *Frederic Moore Simpson, Richard Phenic Spers, F.S.A., *Charles Sydney Spooner, Charles Harrison Townsend, *Edward Prioleau Warren, F.S.A., Paul Waterhouse, M.A. Associates (six seats, nine nominations): *Walter Millard, *Herbert Passmore, *Cyril Womtner Smith, *Arthur James Stratton, William Henry Ward, Mr. Herbert Woodhead.

Practice Committee.—Fellows (ten seats, twenty-one nominations): *Walter Cave, Max Clarke, *Alfred William Stephens Cross, George Hubbard, F.S.A., *Charles Stanley Peck, *Sydney Perks, F.S.A., *Herbert Duncan Searles-Wood, Alfred Saxson Snell, William Henry White, *William Woodward. Associates (six seats, nine nominations): *Herman Welford Cubitt, *Kensington Gammell, Edward Greenwood, *John Nixon Horsfield, *Charles Edward Hutchinson, *Herbert Shepherd.

Science Committee.—Fellows (ten seats, ten nominations): *Harry Percy Adams, Ernest Robert Barrow, William Edward Vernon Crompton, Bernard John Dikelee, John Dunn, Frederic Richard Farrow, *Herman Welford Cubitt, *George Holborn, *Hawescourt Elvey Smith. Associates (six seats, ten nominations): Robert John Angel, George Leonard Elkington, Alan Edward Munby, M.A., *Digby Lewis Solomon, B.Sc., *Ernest William Malpas Wonnacott.

A star * prefixed to a name denotes re-

election a dagger † signifies change of office. In the list of members of council a section § shows a nomination on the retiring Council's house list; a paragraph ¶ a subsequent nomination.

The following is the communication which was sent to voters in May by the Institute Members' Club:—

R.I.B.A. ELECTION, 1912.

Institute Members' Club,

Caxton House, Westminster, S.W.

Room 519.

May, 1912.

"REGISTRATION OF ARCHITECTS."

DEAR SIR,—Five years ago Registration as a practical policy was definitely adopted by the Institute, but it is only within the last two years that proposals which proved unsuccessful have originated from the Council, showing in the opinion of the Club, that drastic changes in the personnel of the Council are necessary to bring Registration to its proper basis.

The Institute stands pledged to the Accomplishment of that policy, and unless a Registration Bill is introduced, without delay, of wide and tolerant lines, acceptable to its members, with adequate recognition of all important vested interests, both public, professional, and educational, the Institute will inevitably steadily feel obliged to surrender to unqualified persons and trading firms those rights which its members have won by proper qualification.

During the whole of the five years this matter has been in the hands of the Council, Committees have indeed been appointed; but it is now recognised that, with enthusiasm and firm conviction on the part of a large majority of the members of the Council, a reform of this nature cannot be effected. We are, therefore, forced to the conclusion that, unless members return candidates at the forthcoming election who possess qualifications necessary, not only for the prestige and satisfactory government of the Institute, but also for the immediate preparation of a Parliamentary Registration Bill, there will be no end to this disastrous delay.

In these circumstances we urge you to vote only for those candidates whom we believe will pursue a strong and vigorous policy such as we consider to be absolutely necessary in the interests of the Institute at the present juncture, and for your information we append a list of such candidates.

Signed on behalf of the Institute Members' Club,
ALBERT W. MOORE, Fellow,
HERBERT SHEPHERD, Associate,
Hon. Secs.

PRESIDENT.

*BREWSTER, REGINALD.

VICE-PRESIDENTS.

CROSS, A. W. S. HUBBARD, G.

COUNCIL.

FELLOWS.

BREWELL, A. W.
CLARKE, MAX.
COOPER, T. E.
DUNN, W.
FARROW, F. R.
FLOCKHART, W.
FORSTH, W. A.
GIBSON, J. S.
LANCASTER, H. V.

PEACH, C. S.
PERKS, S.
PRYOR, S.
QUENNELL, C. H. B.
RICHARDS, E. A.
TAPPER, W. J.
WHITE, W. H.
WIMPERIS, E. W.
WOODWARD, W.

ASSOCIATES.

GAMMELL, K.
GUNN, E.
NIXON, T. E.

SOLOMON, D. L.
WARWICK, S.
WILSON, N. N.

N.B.—It will be noted that with one exception (Mr. Solomon, who was replaced by Mr. Greenlade), all the members recommended in this list were elected.

R.I.B.A. BOARD OF ARCHITECTURAL EDUCATION.

The following is a further list of students whose designs have been approved:—

Subject I. (b): A Terrace of Five Houses.
—Mr. E. H. Gibson.

Subject II. (b): A Cloister with External Entrance Gateway or Tower to a Collegiate Building.
—Mr. E. H. Gibson and Mr. Wm. Voelkel.

THE CITY AND GUILDS OF LONDON INSTITUTE.

The report of the council for the year 1911 is the thirty-second annual report since the incorporation of the Institute. In their last annual report the council submitted the text of the supplemental charter granted to the Institute to enable it to co-operate more effectively with other bodies in the co-ordination of technological work, particularly in the Metropolis, and more immediately in regard to the association of the Institute's Central Technical College as the Engineering Section of the Imperial College of Science and Technology. The supplemental charter provided for the constitution of a delegacy, representing the governing body of the

Imperial College, the City and Guilds of London Institute, and the Goldsmiths' Company. This delegacy is charged with the immediate control of the Central Technical College, which, under the new name of the City and Guilds (Engineering) College, will include the whole of the Engineering Department of the Imperial College. Additional buildings for Engineering are in course of erection, towards the cost of which the Goldsmiths' Company made a grant of £50,000. The delegacy expect shortly to be in a position to consider the future development of the work of the College, in view of the extension of the buildings now in course of erection. They urge upon the governing body of the Imperial College the desirability of the completion of the buildings with as little delay as possible. At the close of the session in July, 1911, the diploma of Associate of the City and Guilds Institute was awarded to 96 matriculated third year students, as against 80 in the previous year. Last year 28 students of the College obtained the degree of B.Sc. (Engineering) in the University of London; 14 in honours, and 14 pass. The City and Guilds Institute of the University who have taken their degree from the Central Technical College is now 185, that being about half the total number of internal degrees conferred by the University in Engineering since 1903, the first year of the examination. The following are the figures:—

| Internal Students of the University of London | 1903 to 1911. |
|---|---------------|
| Passed Honours | 14 |
| Passed | 14 |
| Total | 28 |
| Total The Central Technical College | 147 |
| All other Colleges of the University | 130 |
| Total | 277 |

There were in all 219 registered internal students of the University of London attending the College.

It is regretted that the number of day students attending at the Technical College at Finsbury during the year 1910-11 amounted to only 147. With a view of possibly increasing the number of students, also of making the best use of the advantages to be obtained at the College, the Principal has recently suggested that it would be advisable to establish a third year course in Electrical Engineering. Having regard to the large amount at present expended by the Institute on each student, it is considered advisable that the suggestion of the Principal should be tried experimentally on the understanding that the Institute be put to no further expense. A sub-committee was appointed for the consideration of this suggestion, and it is now being ascertained whether some satisfactory arrangement cannot be arrived at between the Finsbury College and the City and Guilds Engineering College (S. Kensington), whereby an increase in the number of students to the Finsbury College be obtained. At the close of the session certificates were awarded to 47 students, as against 57 in the previous year: 19 in Mechanical Engineering, 21 in Electrical Engineering, and 7 in Chemistry. There were 69 candidates at the entrance examination to the current session; of these, 69 passed the examination, and 57 joined the College. 7 candidates were admitted after the entrance examination, making the total number of students 126. The Engineering Department of the College was attended by 277 students, as against 233 in the preceding session.

Owing to the death of Mr. Brophy, the headmaster, the Institute have had under their mature consideration as to the advisability of continuing the Art Department at Finsbury, and it has been decided that it would be advisable to continue the department for the present, and that expert advice be obtained as to its future management.

South London School.—The report for last session, given in Appendix C, shows a satisfactory increase in the entry of students during that period, distributed as follows, and compared with the two previous sessions:—

| | 1908-9. | 1909-10. | 1910-11. |
|--------------------------|---------|----------|----------|
| Modelling | 20 | 37 | 40 |
| Life drawing—Evening | 31 | 30 | 32 |
| Life drawing—Special Day | 14 | 14 | 12 |
| House decoration | 29 | 22 | 21 |
| Total | 106 | 103 | 120 |

* Have written to say that their names were thus used without consent.

It has been pointed out in previous reports that the attendance of students at this school, especially in the Modelling and House Decoration sections, is affected from month to month by the location of their daily work. From the nature of their employment the students are liable to be moved from one place to another, and in some cases for considerable periods away from London. In December last the Royal Academy, Gold Medal and Travelling Studentship of £200, awarded every other year in the subject of Sculpture, was again carried off by an old student of the school, John Angel. Out of fifteen competitions, eight have been won by students of the South London School, and two by students of the Art Department at Finsbury, so that ten successful competitions out of fifteen have been students of the Institute. The report in the appendix deals with various matters connected with the school, and contains the reports of the teachers. Since the issue of that report the annual competitions have been held and have produced a more than usually high standard of models and designs. The three Modelling sections have been judged by Sir Oliver Goscombe John, and those in the Drawing and Painting section by Mr. H. A. Olivier.

Department of Technology.—During the past session 52,680 students were in attendance at 4,395 classes in Technology registered by the Institute. The total number of candidates present at examination last year, including candidates from India and the Dominions overseas, was 27,205. This figure shows an increase on that of any previous year. The issue by the Board of Education in June last of Circular No. 776, in which the Board announced their intention of ceasing to hold examinations in Stage of all science subjects, of giving up practical examinations, and of limiting their science examinations to certain subjects set forth in the appendix to the Circular, will necessitate modification in some of the Institute's regulations, particularly in the requirements for full technological certificates.

The Institute has continued its inspection of technological classes in textile subjects, motor carriage building, boot and shoe manufacture, and plumber's work. The council attach great importance to the advantage of associating, as far as possible, examination and inspection. The council express thanks to the various trade societies, who, by their advice and offers of prizes, assist the work of the Department. In addition to the offers of prizes previously made by other societies for different objects, the Institution of Heating and Ventilating Engineers have offered prizes to the value of £12 to the candidates who take the highest places in the Institute's examinations in heating and ventilation: the first award of these prizes was made on the results of the examinations in 1911. The Institution of British Gas Engineers have also offered prizes to the value of ten guineas to the candidates taking the first two places at the Institute's final examinations in Gas Engineering and Gas Supply. In order to encourage attendance at technological classes, the Institute of Plumbers have offered prizes and medals to the value of £10 to the student making the highest number of attendances in the session at evening classes in Plumbers' Work registered by the Institute.

The total expenditure for all purposes of the Institute during the year past in all its departments amounted to £48,343 3s. 2d., including a sum of £1,430 18s. 8d., part of an appropriation made by the council for the completion of the Engineering workshops of the Central Technical College and their equipment; and of £643 13s. 5d. extraordinary expenditure on the extension of the Technical College, Finsbury.

The income of the Institute for the year 1912 is estimated to amount to £29,310, and the council, on the recommendation of the Finance Committee, have made the following provision for the year, subject to the various grants for special purposes:—City and Guilds (Engineering) College, including scholarships and £200 balance for extension equipment, £5,950; Technical College, Finsbury, £11,650; South London

School of Technical Art, £1,250; Department of Technology (including £350 for lavatory), £9,980; Leather Trades' School, £1,046; general administration, £1,600—total, £31,476. It will be noticed that the estimated expenditure for the year is £2,060, and the estimated receipts by means of £2,060, and it is regretted that this is partially caused by the reduction of the contributions made by two of the Guilds.

THE STRUCTURES OF THE FUTURE IN RELATION TO AVIATION.*

By HORACE CRETT, A.R.I.B.A., P.A.S.I.
(Member).

Although a treatment of the subject-matter of this paper may appear to be but drawing a bow at a venture, yet upon analysis some conclusions result which may not be very far from the mark. A necessary preliminary to theorising on the aviation structures of the future is a consideration of the structures of the present. These, of course, are met with at every aviation ground, and consist of the workshops in which the aeroplanes are constructed and repaired, the "hangars," or, in plain English, the sheds in which they are housed. To call a spade a spade is an English characteristic—in spite of the preference of the clergyman of the tale for terming it a certain kind of shovel—and I see no reason why we should not call a shed a shed, and have done with it. These buildings—workshops and aeroplane-sheds, as at present constructed, seem to be of a somewhat temporary character, the enclosures being of wood studding, covered either with boarding or corrugated iron, and the roofs being light corrugated-iron structures. This is only natural. In the early stages of any industry it is bad policy to erect buildings of too permanent a character, as it is very probable that a short experience will find that considerable alterations in planning and arrangement are required. But in course of time, when the twin industries of aeroplane construction and aerial transit are established as large factors in our national industrial programme, buildings of this slight construction will not suffice. When, in any industry, standard types of buildings have been evolved, it is bad economy in the long run, to have resort merely to the semi-permanent forms of construction. Corrugated iron in our climate must be painted every year or so: otherwise the galvanising wears off and the material rusts through. The cost of maintenance is thus very heavy, and, even if the material is well painted, a life of more than thirty years is hardly to be expected. These remarks do not apply in quite the same degree to buildings with boarded enclosures; but there is the risk of fire to be considered, and in consequence this method of construction is prohibited by practically all local by-laws, except in situations remote from cities and buildings. It is true, however, that when our knowledge of the requirements has been evolved from experience, aviation buildings will be as permanent in construction as those now erected in connection with the motor-car industry.

FORMS OF CONSTRUCTION.

When consideration is given to the form which this permanent construction will take, it is, however, a question whether flat brickwork will hold its own, or whether it will have to give place to one of the more modern forms of construction. As regards the aviation workshops, these, in common with new workshops of other kinds, may very probably be constructed of a steel skeleton filled in with brickwork, or of that new combination of materials, reinforced concrete. Aeroplane-sheds, necessarily being, it is probable, will hardly lend themselves to steel-frame construction; but it would appear that reinforced concrete is particularly suitable for structures of this character. Experience in connection with the new General Post Office and elsewhere has shown that rein-

forced concrete is particularly suitable for buildings requiring large areas of unencumbered floor-space. Therefore, it may be assumed that it will in due course be largely adopted for the construction of aeroplane-sheds, particularly if it is possible, as I believe now to be the case, to form watertight roofs of this material without asphalt or any other kind of covering. Our special constructional point in the design of aeroplane-sheds, whether buildings of the present size or those of the future, is that, if the aeroplanes we expect to see in the future, appears to be the doors or shutters to close the necessarily large main openings. At the London Aerodrome the constructors of the various aeroplane-sheds will be seen to have exercised considerable ingenuity in the design of the wooden doors. It is evident that the ordinary practice of making two folding doors to the main opening of a structure were adopted in the case of an aeroplane-shed, such doors would, on account of the great size of the opening, be most unwieldy, and the task of manipulating them in a gale of wind would be positively dangerous. Hence the need for doors or shutters which can be folded into several sections. While such a contrivance, that is, having wooden shutters with vertical pivots sliding in grooved iron bars at the top and bottom of the opening may be efficient enough to warrant its occasional adoption in permanent buildings, it seems probable that in the best class of work, steel rolling shutters, similar to those adopted in tramcar-sheds, will be employed. Such shutters need not be in large widths and would thus cause no difficulty in operation, while the advantage of having the shutters entirely out of the way when not in use is very evident. A further important constructional point which does not occur in modern aeroplane-sheds, but may be anticipated in future constructions, is the obtaining of large floor-spaces with the absolute minimum of columns or stanchions. At present the aeroplanes in use are comparatively small—that is, compared with those we may expect in the future—and it is not, I believe, customary to put a number of aeroplanes in one shed. But, in due course, when an enterprise with such a title as the London Aerodrome Company is set on foot, each building at the company's depots will doubtless be constructed to contain a considerable number of aerobuses, and with these vehicles exceeding by many times the size of a modern biplane it will be necessary to keep the floor-space almost entirely free from columns. To effect this with due regard to safety will not be easy, but provided by a skilful use of reinforced concrete the problem will be satisfactorily solved. Thus far the structures considered have been those for important aeroplane enterprises. But, with the development of the science of flying, it is to be anticipated that before very long venture into flying will be seized with the same enthusiasm by motor-cars for aeroplanes, and an aeroplane-shed will be a necessary complement to the outbuildings of a well-equipped house. The only special question which appears to arise in connection with such a building is the provision of a sufficient space for starting in front of the shed, it being obviously difficult matter to start in the middle of a street of ordinary width should such be allowed, as it probably will not be, by the responsible authority.

TOWN LANDING-STAGES.

The subject of the structures to be erected as workshops for the manufacture of, and as sheds for the housing of, aeroplanes makes no great demand on the imagination. Structures of this kind already exist as a guide, and, in any case, the uses to which the buildings are to be put are not such as to necessitate any striking departures in construction. When the landing stages to be erected in large towns are considered, a more difficult case of speculation occurs.

The first landing-stage which obviously will be necessary is almost self-evident. As the risk associated with aeroplane flights has been reduced to a reasonable minimum, the present prohibition of flying over towns will be removed—or, at any rate, modified so as to be made applicable only to

* A paper presented at a meeting of the Institution of Municipal Engineers, held at the London Aerodrome, Hendon, on Wednesday, June 12, 1912.

CURRENTE CALAMO.

It is not wonderful, perhaps, that the Institute Members' Club Ticket has had some effect on the elections at the Institute. Of the Fellows it urged members to vote for, eleven were already on the Council's nomination list, and two out of the six Associate Members. So that not much real "new blood" has been brought in to "end this disastrous delay" in obtaining Registration, or "possessing qualifications necessary for the prestige and satisfactory government of the Institute." It is, of course, possible that Messrs. Perks and Pick and Quennell and Gammell and Gunn and Mumby will straightaway find the royal road to Registration "on wide and tolerant lines." We shall heartily welcome half the zeal with that end in view which fired the determination of the Institute Members' Club to have "drastic changes in the personal [sic] of the Council." We shall not die with surprise if the "ins" lack the enthusiasm of the "outs" once again, now they are snug and warm for twelve months on the right side of the blanket.

We fear the fun next session of listening to more "Limehouse" speeches may be a poor exchange for the abandonment—if it is abandoned—of a policy which, if humdrum, was practicable. We rather regret that several men on the old Council who have done good work have failed to keep their seats. They will not be absentee long. We are glad that the high polls of some others testify to the fact that personal qualifications and well-earned professional pre-eminence still outweigh all partisan considerations. We wish the new President a brilliant term of office, and that he may retire by-and-by with the happy consciousness that the Institute has not failed either in its responsibilities to its own members or in its perception of the best means to unify and consolidate the whole profession. We are not sure that his first Council will effect much in that direction; but none will rejoice more than we if for once it is not true that "Blessed is he that expects nothing!"

The death of Alphonse Legros last December, not long after his tribute at the Tate Gallery to the genius of Alfred Stevens, will recall to many his strong influence on our own artists, both sculptors and painters. Though a fifty-years' resident in England, he certainly was not "British"; but that will not militate against the interest attaching to the present exhibition of his works at the National Gallery of British Art. Indeed, we hope the Trustees will, sooner or later, see their way to add permanently one or more of his pictures, if not an example of his sculpture. The present exhibition is a fair illustration of the divergent influences which characterised Legros's work. The contrast between the early "Cupid and Psyche," painted in 1861, and his later illustrations of the religious life—such as the "Angelus," the "Pilgrimage," the "Femmes en Prière," the "Refectory," and the "Rehearsing the Service"—need only be mentioned. Of his work dealing with the life of the poor, we have "The Barricade," hardly a success, and "Le Repas des Pauvres," infinitely better. All the portraits are interesting; we like the etching of Carlyle better than the picture.

The Amalgamated Society of Carpenters and Joiners, the principal trade-union in-

volved, has decided by a ballot vote to accept concessions offered by the London building trade employers. The labourers' and other unions involved, whose notices were sent in, will be dealt with in due course. Instead of the immediate increase of 1½d. an hour demanded by the men, the employers offered to the carpenters and joiners an increase of ¾d. an hour in September, with a further ¾d. an hour next March, the present hours to remain unchanged. The much-talked-of general strike in the London building trades, which was to have taken effect on the expiration of the notices next week, has, as we have intimated all along would be the case, been averted. We congratulate all concerned, and wish their common-sense and moderation were more general.

Readers who know the beautiful salt-glazed stoneware of the Martin Bros. should not miss the quiet exhibition now open at their shop at 16, Brownlow-street, Holborn, of the works selected by the late Charles D. Martin as being remarkable productions of the ware from the "firings" of many years, and never previously shown. Of the four brothers, only two survive—the eldest and the youngest, Walter Fraser Martin died suddenly last March. He was the chemist and scientist of the fraternal "firm," and with him some of its secrets of mixtures and colours have gone. Charles D. Martin, the "business man," died in June, 1910. Robert Wallace Martin—who, nearly seventy, has the complexion of a boy and the enthusiasm of youth—is the sculptor-artist, and Edwin B. Martin the painter and etcher. A talk with either of the two survivors is in itself a treat, ever so faintly alloyed with regrets, as one leaves, that such lives as these men have lived are not for many of us to-day, hampered by the scramble which they have experienced.

For every bit of their work is done, and has been done, by themselves. From the mixing of the clays to the designing, decoration, and firing of the finished pot at Southall, every piece is their own handiwork, never repeated, always varying in form, colour, and decoration. London-born, they began as potters at Fulham in 1873, and moved to Southall in 1877. Wallace Martin was in his youth a sculptor of no mean ability, and some of our readers may remember his exhibits at the Royal Academy. Very early the aim to produce the finest salt-glazed stoneware enthused him, and for forty years he and his brothers have gone "from strength to strength" in their quest of their ideal. A hundred times over the commercial potter would have patented some new combination or puffed some new "ware"—the lustrous blacks and metallic glazes alone would have made the "fortunes" of the worldly-wise, and deluged the country with mechanical reproductions. But the one aim of the Martins has been to better the last result in form or subject or colour, and nothing that we know in modern work exceeds the individual charm of their products.

Whether, speaking generally, they have bettered their earliest achievements is a matter of taste. Based as these were on the 16th and 17th century work of Flanders and Germany, and our own of Fulham, primitive and crude as the limited range of blue, brown, and grey colours may seem to some,

we confess to a preference for some of the examples at Brownlow-street that later ones do not disturb. Others doubtless will more appreciate the etched decoration of fish, dragons, flowers, birds, and foliage which they seem to have favoured in middle life. All will turn with mingled admiration and laughter to the unique grotesques which are among the later products of the genius of Wallace Martin, rivalling the fancies of the Mediaeval carvers, which must surely have inspired them. His son, Clement Martin, we are told, has lately joined his father and uncle, and inherits their genius. May he and others who may follow him keep to the old paths and give us still the embodiment of real "art craftsmanship" till the day breaks for us all, and the shadows of sordid "art manufacture" flee away for ever!

It is announced in the official "Gazette" of London University that the contributions anonymously offered towards the purchase of the Bloomsbury site for the new central buildings have been cancelled. We are not sorry; nor are we surprised that the withdrawals seem curiously simultaneous! After deducting the various subscriptions and donations promised by the Duke of Bedford or the trustees of his estate, the cost of the site to the University stood at some £300,000, while its valuation for the purposes of the London County Council was stated to be £125,000. The site itself, intersected by thoroughfares, and incapable of proper isolation, was an impossible one. Of the two alternatives suggested, that we illustrated in our issue of March 22 last, by Mr. Barclay Niven, seems to us the more desirable. Anyhow, we hope the University authorities will not be hustled into making a bad bargain for the benefit of adepts in the art of throwing sprats to catch herrings.

We hinted in our issue of December 15 last that the bad reputation of Delhi as a plague centre would doubtless engage the early attention of the British architects and engineers selected to arrange the location of the new capital of India, and are, therefore, not surprised that Mr. Brodie and his colleagues have preferred another site to that of the Durbar camp, which is more or less of a swamp after the monsoon rains. If, as we understand, the new site is to the south-west of the city, outside the Ajmere Gate it is on higher ground than that of the camp and on it are historic buildings which may well find place in the new scheme.

Lord Eversley presided last week over the monthly meeting of the Commons and Footpaths Preservation Society, held at 25 Victoria-street, Westminster. It was decided to ask the Home Secretary to receive a deputation to urge that facilities should be given for the second reading of the Society's Rights of Way Bill, which seeks to simplify the proof of rights of way. Arrangements for the settlement, on lines indicated by the Society, of questions affecting thirty-nine footpaths and bridle-paths were approved, and it was reported that forty-nine other cases had been referred to the Society for arbitration. The Society is assisting to secure the preservation of Leziate Heath, Norfolk, and Hollesley Common, Suffolk, and £300 was still needed to complete the fund for acquiring Minchinhampton Common Gloucester. We hope it will be forthcoming. The Society does a good work well, and

deserves support. Even amid the present welter of window-dressing legislation, the Government might surely give the modest legislative facilities it asks for.

Is the London Museum destined to add "experts" in building materials to its other attractions? An "expert of the London Museum" quoted by the *New York Sun* says: "We do not know the method of the composition of Roman cement, but it is far sounder than any modern cement. Indeed, when some part of a Roman wall has to be dislodged, it is necessary to use dynamite. All we know is that pounded tile is a considerable element in the cement. For the most part, Roman walls are built with stone and tile from a concrete bottom." "We thought most people knew why puzzolanic cements were little used in England, and that what we know as 'Roman' cement dates back only about a hundred years, and why its employment has been practically superseded by Portland cement.

The "unlucky number" is, apparently, still "taboo." Quite a number of London streets, mostly in the suburbs, have no N. 13 at all, the difficulty being got over in many cases by the subterfuge of 12A. That is the case (so a contemporary says) with Park-lane, where 12A is occupied by Mr. Herbert Barker, the celebrated horse-racer. The most famous street without a 13 is the Strand; but that is, perhaps, more by accident than design, for building operations have interfered with the original numbering.

A RURAL COUNCIL AND ARCHITECT'S FEES.

The Gwyrfai Rural District Council, Carnarvonshire, discussed on Saturday the remuneration to be paid to Mr. Hancock, of the Welsh Housing Association, as architect for workmen's dwellings to be built at Clybiant, on a site now occupied by some condemned houses. Negotiations had, it was reported, taken place between the local committee and Mr. Hancock, and the council had approved provisionally of the committee's decision to engage the services of Mr. Hancock to prepare a block plan for a lot of five guineas and personal expenses, and for a contribution of twenty guineas to the funds of the association he was ready to provide sketch plans, etc., of the proposed new houses. Since then a further letter had been received from Mr. Hancock to the effect that the executive of the Housing Association were prepared to assist the council in any way that might be deemed expedient; but for his professional services in planning the houses, superintending, surveying, and advertising accounts, etc., on an outlay of no less than £3,000 he asked to be paid a commission of 5 per cent., inclusive of the fees mentioned as being payable for the preliminary work. A communication was received from the local committee at Clybiant conveying their decision to break off all negotiation with Mr. Hancock, (inasmuch as he had departed from his original terms, and to advertise for another architect. Mr. Robert Jones, a member of the local committee, said they had been clearly led to believe that they would receive the services of the association by merely paying the fees of five pounds and twenty guineas; but now Mr. Hancock demanded further fees, and, as he lived away from the district, the ultimate cost might be endless. The council decided unanimously to stand by the resolution of the local committee. Mr. Hancock had intimated that he would like to interview the council; but, although he was on the premises, the meeting, in view of its decision, thought it unnecessary to call him in.

MR. WALTER CRANE ON THE REVIVAL OF MURAL DECORATION.

The presentation of diplomas and certificates to students attending the drawing and needlecraft classes in the Glasgow School of Art was made on Friday by Mr. Walter Crane. Sir James Fleming presided over the gathering.

Mr. Walter Crane, in the course of a brief address on Art, observed that he had always felt that art was a matter of more than technique. The real gift of imagination and fancy and invention must be natural and spring from the individual hearts and minds. Speaking specially in regard to design, he remarked that the old workshop system of the master workman with his pupils was being superseded by the school system. The reproach that an art school does not teach or less theoretical was gradually being removed, and he was glad to see the technical side was so well cared for in the Glasgow School of Art. Many of his hearers were looking forward to taking up careers as artists and designers in the world at large, and although he thought it was certainly wise to make themselves acquainted with many branches of design—he was speaking now to designers—to endeavour, as far as possible, to be what was called an all-round designer, yet he thought it was very wise to develop, to specialise, according to one's strongest individual feeling, so as to make their central study a stem, and the other studies subsidiary, or branches of the tree. He was glad to see that considerably more progress was being made by the students in mural decoration. It was evident there was a certain movement in London and elsewhere towards a revival of mural painting, and one welcomed any indication of a wish to encourage what he would term the noblest of all the arts. No doubt the best system of encouraging the art would be to give commissions to experienced designers and artists, and to enable them to draw into their service, as assistants, students from the schools. If something of that sort were done by means of money subscribed by municipalities or Government grants, he thought it would do a very great deal to encourage the art. They had public buildings, such as schools and hospitals, with any amount of wall-space at present absolutely bare, and the decoration of these walls would not only bring much pleasure and interest into the life of people who inhabited these places, but would contribute to the education of the children, and might be a means of permanently recording our history and life, which was certainly not wanting in interest compared with any age in the world.

LIMITATIONS OF DISTRIBUTING MACHINES.*

By HENRY B. BROWNE, C.E.†

Within the past few years several different types of distributing machines have been designed in this country for the purpose of applying bituminous materials in the construction and maintenance of highways. The aim of some manufacturers has been to construct a distributor which will be able to do any class of work with any kind of bituminous material. The present type, however, every distributor made is limited as to quantity and kind of material which it will distribute. There are many instances in which a distributor has applied materials of a certain grade with excellent results, and in some cases these interested in the machine, because of their unfamiliarity with the different kinds of bituminous materials, have unfortunately jumped to the conclusion that any other kind of bituminous material could be distributed just as successfully. That the contrary has proved to be the fact is common experience, and a study of conditions will show that there are good reasons in explanation of it. In the first place, consider the different kinds of bituminous materials used in modern high-

way improvement, together with the amounts desirable per square yard in some of the different methods of construction and maintenance. First, there are the asphaltic oils and tars, which can be applied cold in amounts varying from 0.10 gal. to 0.25 gal. per square yard. Such materials are used mainly as dust palliatives, and several treatments may be necessary during a season. Asphaltic oils and tars used in the construction of bituminous surfaces are generally of a greater consistency, and require heat to render them sufficiently fluid for application. They may be semi-fluid or semi-solid when at ordinary temperatures. This kind of work requires applications of from 0.25 gal. to 1 gal. per square yard. Work done by the penetration method usually requires the use of a still stiffer material, to be applied in amounts varying from 1.25 gal. to 2 gal. per square yard. Flush coats on bituminous pavements are sometimes specified to be constructed of asphalt (thick) in the form of mortar mixtures, using from 0.5 gal. to 1 gal. per square yard. From the foregoing it is obvious that it is a very difficult matter to design a distributor capable of applying such a variety of materials in these varying amounts.

TYPES OF DISTRIBUTORS.

Consider next the different types of distributors. There are two distinct classes—namely, gravity and pressure distributors. A gravity flow-distributor is really nothing more than a larger viscosimeter. A pressure distributor differs from the viscosimeter principle in that it has the added feature of pressure which forces the material through the opening. In the bituminous material laboratory viscosimeter is an instrument for measuring the consistency of a material when fluid. Essentially, it consists of a receptacle holding a definite quantity, in which the material can be placed and heated to any desired temperature. The bottom of the receptacle is provided with an orifice for emptying. The measure of the force depends upon the time consumed for a certain quantity of material to run through this outlet. A distributor consists of the tank and the valved distributing pipes, which are provided with slots or holes through which the material must pass. In the laboratory, the principal variation made in the tests of different materials is that of temperature. In a distributing machine, however, the temperature of the material and the size of opening—and the pressure—if a pressure machine—have to be taken into account. In order to distribute a definite amount of material per square yard the speed at which the machine travels also has to be reckoned with.

IN THE GRAVITY MACHINES

the material ultimately flows through a slot which extends the full length of the distributing device, through holes bored in pipes or through nipples fitted into the pipes at small distances apart. The slot is adjustable so that larger quantities of material can be applied by opening the slot wider, and using certain grades of material and quantities about 0.5 gal. per square yard, the slotted distributing-pipe will apply the material in an unbroken sheet, if proper care is taken to prevent the parts from becoming clogged. In the case of the distribution of material by means of pipes provided with holes, since the size of the holes cannot be changed, larger quantities of material are applied by bringing into use more pipes or by changing the temperature of the material. Such machines are generally provided with two or three such pipes. The flow of the material, however, will consist of a series of small streams which do not unite on the road surface unless a large quantity of material is being used, or unless the distributor is equipped with brushes, a feature characteristic of some of the foreign types. If the separate streams impinge on a splash-board, it will serve to unite them to a large degree when quantities over 0.5 gal. per square yard are being applied. The character of the flow from pipes fitted with nipples at small intervals apart is that of the same as in pipes with bored holes. By inserting different-sized nipples in the pipe, however, the machine can be better adapted to applying

* A paper presented before the American Association for the Advancement of Science.

† Instructor in Highway Engineering, Columbia University.

different grades and quantities of material, than can the machine provided with pipes without the nipples.

PRESSURE DISTRIBUTORS

can be divided into two distinct classes; those in which the distributing device is fixed to the tank-wagon and those in which it is separate from the tank wagon. Those machines which consist of a pressure-tank and flexible hose will not be considered in this paper. Pressure may be derived in a variety of ways—by rotary pumps, by duplex pumps, by air, or by steam. Power for the pumps is obtained by steam from a steam-roller, by a gasoline-engine or by a chain-drive from a sprocket attached to the rear wheel of the tank-wagon. The distributing device consists of a horizontal pipe to which are fixed special forms of nozzles spaced 6 in. and more apart. Some machines have two horizontal pipes with the nozzles of the two pipes staggered. The nozzles are bored so as to give a fan- or cone-shaped spray. In some of the machines the gasoline-engine and rotary pump are fixed to the back of the tank-wagon, together with the distributing apparatus again, and the distributing apparatus may be mounted on a separate truck which trails after the tank-wagon. When a steam-engine is used to run the pump, the engine, pump, and distributing-pipes are generally mounted on a separate truck. In the case of sprocket-drive machines the pump and distributing-pipes are fixed to the tank-wagon. When the pressure is obtained by the contact of the steam or air with the material in the tank, a specially-designed tank-wagon must be used capable of containing steam or air under pressure, the distributing-pipes being attached to the tank. Up to the present time all of these machines, with the exception of one or two types, have been built for the application of bituminous materials which range from a fluid to a semi-solid state of consistency at ordinary temperatures. There is one instance of which the writer is aware in which one of the machines applied successfully a semi-solid material. This would not have been possible except that live steam was turned through the distributing-pipes, thoroughly warming them before the application of the material. A very essential part of any distributing machine is

THE TANK.

Some of the distributing devices are meant for attachment to any type of tank-wagon, while others are fitted with especially designed tanks. It has been the practice in this country to use tanks with a capacity of about 600 gal. This is contrary to the practice in Europe, where the largest tanks are about half this size. The tanks in this country are generally cylindrical; in Europe they are rectangular and shallow. The principal advantage of large tanks is that more material can be handled at one time, and in the case of long hauls fewer trips will be required. Where the distributing machine is used which either trails after the tank or is detachable, the changes from one tank to another will not be so frequent; hence not so much time will be lost for this reason as when a smaller sized tank is used. The disadvantages are that unless the wheels are provided with tires at least 6 in. wide they will not be suitable in certain kinds of work, and the temperature of the material is harder to control, frequently involving lost time in raising the material to the required degree of heat. A great many of the tank-wagons in use are the old type of watering-carts made over. As these are usually not fitted with means of heating the material, the work of the machines is limited to applying the materials which either require very little heat or no heat at all. The time will come when, in the writer's opinion, practically all of the materials used will be of such a consistency that they must be heated and kept hot. Obviously, then, some means of heating the tank must be provided. This is done now by placing steam-coils inside the tank, by a coal or wood fire, or by an oil-burner under the tank. The direct fire is probably the better if it can be controlled, since it is more rapid and avoids the use of a boiler. Although the tank may be furnished with a heating

apparatus, it will generally be found more economical to first heat the material to the desired temperature in kettles or tank-cars, depending on how it is shipped, and then to transfer it to the distributing wheels. The material may be kept hot by the heating apparatus of the tank. There are several pumps now on the market which handle the different materials readily, so that the operation of transfer does not involve much time. On some of the distributors, where a gasoline-engine is attached to the tank, the engine may operate the pump so as to fill the tank.

POINTS OF INTEREST IN DIFFERENT TYPES.

Those distributors which consist of a steam-engine, pump, and distributing-pipes mounted on a truck trailing after the tank-wagon require the use of a steam-roller or tractor to furnish steam for the pump-engine. The roller, tank-wagon, and distributor truck together extend along the road for a distance of about 30 ft. If the truck were not provided with a steering apparatus independent of the tank and roller, considerable difficulty would be experienced in keeping the distributor in its proper place. A disadvantage of this type is that it necessitates the use of a roller or tractor in operation, which is an expensive item. This machine is also clumsy for operation on city streets, where short stretches, one or two blocks in length, have to be treated, thus requiring the frequent reversing of the machine. Distributors in which the pressure is obtained by contact of air or steam over the material in the tank, the distributing-pipes being fixed to the tank, also require the use of a roller or tractor. The tank, in order to withstand the pressure, is built of heavier material, and hence is more expensive than one so designed, besides being harder on the horses which haul it from the point of supply to where the material is being applied. The expense is increased by the use of the roller, in the case of the type mentioned above. When certain grades of asphaltic materials are applied by this distributor, it is necessary to equip the roller with an air-compressor for furnishing the pressure, since live steam in contact with certain grades of asphaltic materials will cause the latter to foam. This type of distributor and the preceding are the only pressure machines at present capable of handling the heavier binders, since they are provided with steam for cleaning and heating the distributing-pipes when so desired. There is a possibility of stalling the roller or tractor with this type of machine when distributing heavy materials on account of the inability to furnish the required amount of steam to heat the material and furnish the pressure. Distributors in which the pressure is obtained by a gasoline-engine and a pump, either fixed to the tank-wagon or mounted on a truck trailing behind the wagon, may be drawn by horses. They are compact, and suitable for work on city streets. Distributors in which the pressure is obtained by steam from a pump operated by a sprocket drive are compact, and do the work with equally as good results as these machines in which the gasoline-engine is used. They require no skilled labour to operate, and may be drawn by horses, this being the cheapest form, under certain conditions, as far as operating expense is concerned. To obtain the desired results, however, in the amount of pressure obtained, since the sprocket drive acts as a brake on the wheel. Two horses have drawn a 600-gallon tank-wagon with 500 gallons of material up a grade of about 4 per cent., and maintained a pressure of 15 lb. On level ground it requires three horses to pull the machine, without unduly tiring the horses, when a pressure of 30 lb. is used. The two types just mentioned have been used for distributing only the lighter grades of bituminous materials. At this point it may be well to consider why some machines operate under 15 lb. pressure, while others use a pressure varying from 40 lb. to 60 lb. The resistance to flow depends on the consistency of the material and the size of the holes through which it must pass. Sufficient pressure must be obtained to overcome this resistance, and also to force out the quantity desired. In distributing the same amounts

of material, the more viscous the material the more pressure is necessary. The writer believes that the correct amount of pressure to use is that which will insure a uniform distribution of the material in the required quantity, and that anything over this amount is wasted energy. Unless a machine is provided with interchangeable nozzles of different sizes, the pressure must be varied in order to obtain the desired distribution of different grades of material. The relation between the size of the nozzle, the pressure, and the amount of the material distributed can be obtained only by exhaustive experiments for different grades of material. Clearly, the speed at which the distributor travels has to be taken account of in getting on the desired quantity of material. No matter how nicely the other parts of the machine may be related, a variation in the speed will require all calculations as to quantity applied. With mechanical tractive force, this point can well be taken care of after sufficient experiments. With animal tractive force, although it is a little more difficult, it is not impossible to obtain uniform speed. The extent and nature of the work to be done will determine the kind of a distributor to use. For repair work on isolated stretches, a small-capacity machine similar to some of the European types could be used to advantage. For flush coats on bituminous pavements, which are to be applied simultaneously with the construction of the pavement, a hand-drawn gravity distributor will be found economical, since only short stretches need be covered at one time. For extensive superficial treatments, or for penetration work, a distributor of the large type can be used, the particular kind chosen for the work depending upon the character of material to be used, the location of the work, and the quantity to be applied. —Contract Record.

After an interval of sixty-three years, the Cambrian Archaeological Association will this year hold its annual meeting at Cardiff, the week ending being that of July 22 to 27.

A fire broke out on Friday evening last at the recently-erected premises of Messrs. J. H. Heathman and Co., fire appliance manufacturers, of Penson-green, Fulham, the premises involved were the mill and store, and in two hours they were completely burned out, damage to the extent of £3,000 being done. A force of ninety firemen was engaged. There are usually between 200 and 300 people employed on the premises but all had left before the fire occurred.

The King Edward Memorial Sanatorium at Ipswich will be formally opened to-day (Friday) by Lord Balfour of Burleigh, K.T., chairman of the council of the National Society for the Prevention of Consumption. It has been built on a high-lying site to the east of the town, and between Foxhall and Buckenham roads, given by Col. E. G. Pretyman, M.P., from plans by Messrs. Birchall and Cantley, architects, Museum-street, Ipswich. The buildings have a red-brick base, roughcast above, with roofs of tiles.

The foundation-stone of the new buildings of the Brighton, Hove, and Sussex Grammar School was laid yesterday (Thursday) afternoon with Masonic rites by the Duke of Richmond and Gordon, Provincial Grand Master of Sussex. The architect is Mr. S. B. Russell, F.R.I.B.A., of the firm of Messrs. Russell and Cooper, Gray's Inn-square, whose design was selected in a limited competition by the assessor, Mr. John Bellon of Hull. The site of the school is at the corner of Dyke-road and Old Shoreham-road.

In a communication to the Académie des Inscriptions, at Paris, Father Schell announces the discovery of the clay tablet containing the plan and description of the temple of Eshnunna, a Babylonian temple, but not yet published by the late George Smith during his last visit to Babylon. It was a copy made by the scribe Ea-Behnam at Erch, in the eighth third year of the Seleucid king Antiochus, in the year 110 B.C. The tablet is of the seven-sided or star-shaped, and contains the measurements of the courts and the sanctuary of the temple, the number, names, and orientation of the different deities and chapels, and also a list of the seven divinities or stations of the famous pilgrim, a step-temple celebrated by Herodotus and Strabo. The description of the sixth story is missing, as was noted by George Smith.

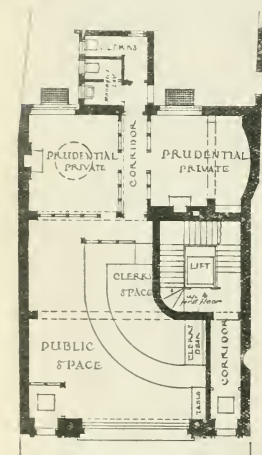
Our Illustrations.

MARYLEBONE NEW TOWN HALL.

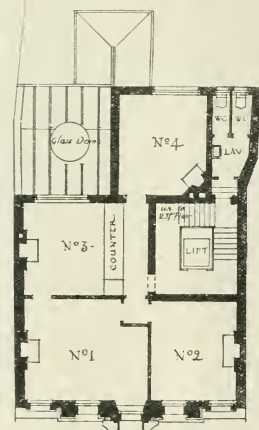
This study was prepared to show certain minor alterations before commencing the working drawings. The tower is being still further remodelled, which we send in sketch of perspective form. The building will be on the Marylebone road, and has a fine view. The exterior will be of Portland stone. The architect is Mr. Edwin Cooper, R.I.B.A., 12 Gray's Inn-square, London, W.C., and the drawing is exhibited in this year's Royal Academy Exhibition. At the meeting of the borough council of Marylebone yesterday (Thursday) a report was submitted to the town-hall committee announcing the order from the London County Council sanctioning the borrowing by the borough council of £70,000, repayable in thirty years, for the erection of a new town-hall. The town-hall committee have instructed Mr. Cooper to proceed with the preparation of the working drawings and specification. We published in our issue of December 1, 1911, Mr. Cooper's selected plans and designs.

PRUDENTIAL BUILDINGS, GRIMSBY.

The new building for the Prudential Assurance Company here illustrates the company's standard in Victoria street, Grimsby, and is just approaching completion. The material used for the front is Ancaster stone. A large ground-floor window lights the Prudential Company's own office, which, with the necessary private rooms, occupies the whole of the ground floor. The upper portion of the



GROUND FLOOR PLAN



FIRST FLOOR PLAN.

PRUDENTIAL BUILDINGS, GRIMSBY.

building is designed for letting as professional offices, and the various floors are approached by an automatic electric lift. The general contractors for the building were Messrs. Hewins and Goodhand, of Grimsby, who have worked under the superintendence of Mr. A. Dawson, clerk of works. The architect is Mr. Paul Waterhouse, of Staple Inn buildings, London, W.C. The drawing given is now at the Royal Academy.

HOUSE AT RYST WOOD.

This house has been built for the owners of the Ryst Wood Estate, which estate has been recently laid out by Messrs. Read and MacDonald. The house adjoins and overlooks the Ashdown Forest Golf Links. It is brick built and tile-hung, the latter being colour-

washed. The contractors were Messrs. Chapman, Lowry, and Puttick, Ltd., of Grayshott, Hants.

CHRIST CHURCH, SUTTON, SURREY.

The drawings we publish this week, by Mr. F. L. Griegs, shows the completion of Christ Church, Sutton, by the addition of a new tower, narthex, and baptistery, designed by Mr. D. G. Round, architect, of Adelphi-

Shepherd. The arches of three main doorways at east of tower are of moulded bricks. The label mould to arch is supported by six corbel angles, each having a globe, representing the days of the Creation, and terminates in an angel finial, bearing a shield on which are carved symbols of the Way, the Truth, and the Life; the space between the circular and Gothic archway over each doorway being fitted with a stone door bearing the words "Spes," "Fides" and "Caritas." The thrust from the side walls of the nave is carried over the narthex by means of two flying buttresses, each terminating in a turret, the finials of which are carved with an owl and an eagle. The interior has a vaulted roof with oak ribs and plaster groining. The floor is of hexagonal tiles, the external doors are of oak, studded with nails, with ornamental hinges and handles. The internal doors are covered with green leather. The baptistery is finished in embossed white plaster, with an ornamental ceiling, and has a cast lead dado; the central window is surrounded by a garland of roses and thorns, terminating in a celestial crown, and at the sides of the windows are Madonnas, and the ceiling is fitted with small pattern representing objects of the Creation—stars, birds, beasts, flowers, etc. The dado has two bands of grapes and fishes, symbolic of blood and water. The general contractors were Messrs. R. Jones and Son, of Sutton, who obtained the work by tender in open competition.

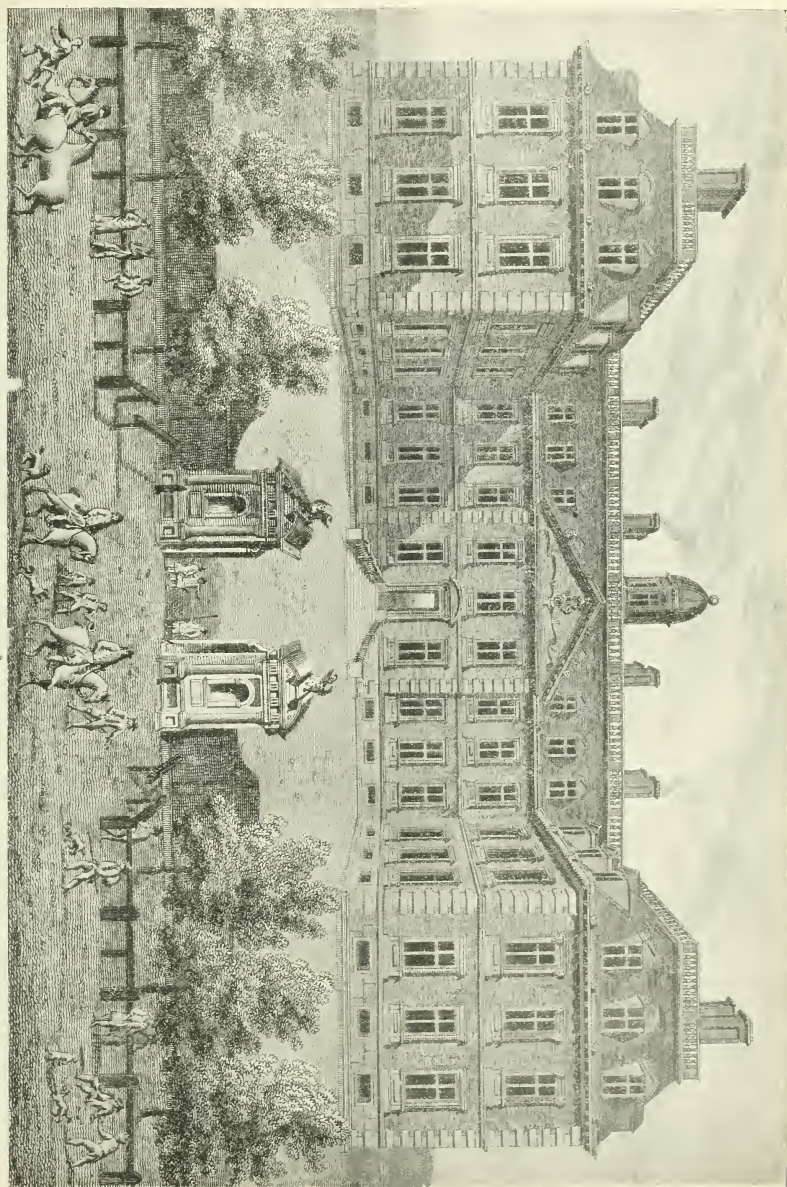
HOUSE AT TOTTERIDGE.

This house has been recently erected in Totteridge-lane, close to the golf course, and adjoining an early example of Mr. Norman Shaw's work, both houses being in the same ownership; hence it was desired that the new building should harmonise somewhat with the existing house. The frontage to the lane being due north, the whole of the reception rooms and chief bedrooms have been placed on the south front, overlooking the garden, and with a fine stretch of country in the background. The accommodation provided is that for a moderate-sized house, near London, with, in addition, a billiard-room on the first floor and a garage and rooms for the electric light plant on the ground floor. The terrace to the south has been made wide and roomy, to allow for open-air meals, promenading, etc. In the drawing-room a small organ has been fitted up in a recess specially provided for it. The whole of the house has been heated in addition to the fireplaces, with hot-water radiators supplied from a small independent boiler adjoining the coal store. The architects were Messrs. H. V. Ashley and Winton Newman, F.F.R.I.B.A., and the builders Messrs. Miskin and Son, Ltd., of St. Albans. The drawing is exhibited in this year's Academy Exhibition.

ST. ANDREW'S CHURCH, FRIMLEY, SURREY.

The drawing of this church, which we reproduce, is exhibited this year at the Royal

terrace House, Strand, W.C., and is now on view at the Royal Academy Exhibition. The church was built about twenty-five years ago from designs by Messrs. Newman and Jacques, and a temporary iron narthex was then erected. This has now been pulled down and a new narthex and baptistery added, together with the lower portion only of the tower; the remainder will be completed when funds permit. The exterior is faced with local red bricks and Bath stone dressings. The windows have Tudor arches and are of moulded bricks. Over the central window of baptistery is a panel containing a stone cross, surrounded by radiating tiles. The roof is of hand-made tiles supplied by Messrs. Ames and Hunter, that over the baptistery terminating in a lead figure of the "Good



CHANCERY HOUSE, PICCADILLY

DESIGNED BY LORD CHANCELLER

1669

DESIGNED BY LORD CHANCELLER 1669 A.D. - SIR ROGER PRATT, ARCHT.

GRANT REGULATIONS FOR TECHNICAL SCHOOLS, ETC.

On the complicated questions, both educational and financial, which are raised by a general revision of the Regulations for Technical Schools, Schools of Agriculture and Fisheries, and of provisions of Further Education, the existing Regulations will be continued in force as regards England during the calendar year 1912-13, subject to certain modifications explained in the following paragraphs. The most important of the changes made are consequent upon the greatly increased amount of State aid which is now available for agricultural education in country areas by the advance made to the Board of Agriculture out of the Development Fund.

The Board of Education desire it to be understood that the withdrawal of the existing provisions of Article 34 of the Regulations does not imply an abandonment by them of the principle of an exclusive or "block" grant in the form of the application of a common rate of grant to the whole or a considerable part of the courses of instruction given in a particular area. On the contrary, they contemplate that the revival, and indeed the extension, of this principle will form an important element in the revision of their Regulations.

The Board desire to give notice that they propose, under the terms of Article 15 (which remains unaltered), to call annually for a full account of the income and expenditure of the more important schools aided under the Regulations for Technical Schools. It is desirable that accounts of this kind, compiled on a uniform basis, should be available, in order that the Board may have accurate knowledge of the cost of technical education of the more advanced types, and of the manner and proportion in which that cost is met from various sources. It is especially necessary to obtain such information in view of the possibility that the cost of the element in the assessment of grant for the more important schools. The account will be called for in a form which the Board propose to prescribe after discussion with persons who are qualified to speak on behalf of the schools concerned, and it is contemplated that all accounts shall be made up to the end of the financial year on March 31. The first financial year for which the requirement will become operative in the case of schools not already rendering accounts will be that ending on March 31, 1913; but the Board will be glad, where possible, to receive accounts for the year ending March 31, 1912.

Certain modifications are made in Articles 28 and 29. The terms of those articles are at present as follows:—

"28. No grant will be made for instruction in any subject or course in which less than 20 hours of instruction is given, either in the year or as provided in Article 24."

"29.—(a) No student's attendance in any course may be counted for grant unless he has received at least 14 hours of instruction in that course, either in the year or as provided in Article 24.

"(b) For the purpose of this article, no combination of subjects will be regarded as forming a grouped course unless it occupies at least four hours a week and 80 hours in all, and unless the average number of hours of instruction received by each student admitted to the course amounts to at least 60."

Certain of the changes which the Board have decided to make in these articles are rendered necessary by the withdrawal of Article 34, referred to below; other changes are made as the result of experience gained in working Article 29 (b). The grouped courses which this article was intended to regulate vary in duration within rather wide limits, and a more elastic requirement will be less exacting as regards the shorter courses, and can with advantage be substituted for the uniform requirement of an average attendance of 60 hours.

Under the modified Article 29 an alternative requirement of 50 per cent. of possible attendance is applicable to those courses of

shorter duration where the requirement of an average attendance of 60 hours per student would imply a higher percentage of regularity. The modified requirement will thus be satisfied if the average number of hours' instruction received per student is not less than 40 hours in a grouped course lasting for 80 hours in all, not less than 45 hours in a course lasting for 90 hours, not less than 50 hours in a course lasting for 100 hours, not less than 55 hours in a course lasting for 110 hours; and the only case in which the full requirement of an average attendance per student of 60 hours will apply are those conducted for 120 hours or more. The modified article further provides that in applying either requirement regard shall be had only to those students who have attended the grouped course for 14 hours or more, and the case is thus relieved of the burden of any casual students who may attend for under 14 hours. The attendance of such students is in any case ignored in arriving at the total of hours ranking for grant, and if they are taken into account in calculating either attendance percentage or average hours per student, the results of the calculation may be adversely affected in a serious degree. For the purposes, therefore, of the modified article, such students will be ignored.

Provision is made in the modified articles for recognising and aiding courses of less than 20 hours' duration in certain subjects, such as ambulance, sick nursing, the management of children, and domestic hygiene, which were aidable under Article 34. Short courses in such subjects, of not less than 10 hours' duration, intended for students whose previous general familiarity with the subjects enables them to profit by instruction of a concise and suggestive nature, may be proposed for recognition under the modified articles.

(a) In view of the transfer to the Board of Agriculture and Fisheries of responsibility for technical instruction in agricultural subjects, grants in respect of all such instruction begun after July 31, 1912, and also grants in respect of any instruction begun after that date by any teacher recognised by the Board of Agriculture and Fisheries as a member of the staff of an agricultural college or of a county agricultural staff will be payable by that Board, and not by the Board of Education under the Regulations for Technical Schools, etc. The Board of Education, however, will still be responsible for aiding all special courses for teachers in schools and classes receiving aid from the Board of Education, and gardening, horticulture, regarded as a technical agricultural subject, will be aidable by the Board of Education in so far as the instruction is given by teachers who are not members of the staffs of agricultural colleges or of county agricultural staffs.

(b) Article 34 of the Regulations for Technical Schools, etc., which was originally framed to allow of aid being given to special courses of instruction in agriculture, and subjects, will cease to be operative, and no grant will be payable by the Board of Education in respect of instruction falling under Chapter 2 of the Regulations for Technical Schools, etc., except in accordance with the conditions laid down in Articles 25 to 33 of those Regulations as modified by the present Regulations.

(c) The withdrawal of Article 34 will not, in view of the new provision for short courses under Article 28 (b), materially affect the kinds of instruction, other than agricultural, aided under the Board's Regulations. The Board have, however, in administering Article 34, given credit to a small extent for expenditure by county authorities upon scholarships, exhibitions, and bursaries of more than those aided under Chapter 7 of the Regulations for 1909, and upon reference libraries for teachers and other minor educational activities which are included by authorities in Schedules K, L, N, and O of their annual schemes of work. The Board are conscious of the value of such activities as an adjunct to more regular courses of instruction; but they have come to the conclusion that they are not such as can suitably receive direct aid from them, in view of the

detailed knowledge of local conditions which any satisfactory allocation of grant would entail, and such aid will, therefore, not be continued after the current financial year 1911-12. The total amount of grant involved is inconsiderable.

APPENDIX.

The Regulations for Technical Schools, Schools of Art, and other Forms of Provision for Further Education in England and Wales, Part I. Grant Regulations, in force from August 1, 1910 (Cd. 5329), are hereby modified as set out below. The modifications take effect from August 1, 1912, except where otherwise provided.

Article 4.—This article is modified by the addition of the following:—(4) (e) Grant will not be payable under these Regulations in respect of technical instruction in agricultural subjects begun after July 31, 1912, or in respect of any instruction begun after that date by any teacher recognised by the Board of Agriculture and Fisheries as a member of the staff of an agricultural college or of a county agricultural staff. Aid will, however, continue to be given in respect of any special courses for teachers in schools and classes receiving aid from the Board of Education, and instruction in gardening may be aided in so far as the instruction is given by teachers who are not members of the staffs of agricultural colleges or of county agricultural staffs.

Article 24.—This article is withdrawn and replaced by the following article:—Article 24. Where it is necessary, on educational grounds, that a course should extend over parts of two educational years, the Board may at their discretion treat the course for purposes of grant as belonging to either of those years.

Articles 28 and 29.—These articles are withdrawn and replaced by the following articles:—Article 28. No grant will be made for instruction in any course in any subject in which less than 20 hours of instruction is given either in the year or as provided in Article 24; except that—(a) Instruction in any subject for a less number of hours may be approved as part of a grouped course satisfying the requirements of Article 29 (b); (b) short courses of not less than 10 hours of instruction may be specially approved in certain subjects if they consist of concise and suggestive instruction given to students who, previous general familiarity with the subject enables them to profit by instruction of this kind. The Board will not, as a rule, recognise such short courses for students of less than 16 years of age, nor in arithmetic, English, and other subjects of general education, but they may be prepared, for example, to recognise short courses for teachers in subjects other than physical exercises, short courses for adults in ambulance or sick nursing, and short courses for women in domestic hygiene.

Article 29.—(a) No student's attendance in any course in any subject may be counted for grant unless he has received at least 14 hours of instruction in that course either in the year or as provided in Article 24; except that—(i) the attendances of students who have received at least 14 hours of instruction in a grouped course satisfying the requirements of Article 29 (b) may be counted, even though the hours were in different subjects, if the number of hours received by all such students taken together amount to an average number of at least 60 for each such student or to at least half the total possible number of hours which might have been received by all such students taken together. (ii) The attendance of a student at a short course specially approved under Article 28 (b) may be counted for grant if he has received at least two-thirds of the total number of hours of instruction included in the course. (b) For the purpose of this article and of Article 28 no combination of subjects will be regarded as forming a grouped course unless it occupies at least four hours a week and 80 hours in all. (c) The operation of Article 28 and of Article 29 (i) and (ii) will be applied specifically so far as to affect the payment of grant for the school years 1910-11 and 1911-12.

Article 34.—This article is withdrawn.

OBITUARY.

We regret to announce the death of Mr. Edmund John Miller Allen of pneumonia, after an illness extending over only a few days, at the age of fifty-two. After studying at the Royal Academy of Arts, where he was a Silver Medallist in 1880, he was elected Associate of the Royal Institute of British Architects in 1882 (extra Silver Medallist, Soane Medallion, 1883), and commenced practice in 1884. In addition to numerous and varied works, both alone and with the late Mr. Arthur B. Gibson, he was joint architect with Mr. J. W. Simpson of the Liverpool City Hospital (South); The Victoria Institute, Worcester; the Glasgow Fine Art Galleries, Kelvingrove Park (one of the most satisfactory examples of modern architecture in Great Britain); and the Cartwright Memorial Hall, Bradford.

Mr. Robert Morham, formerly for a quarter of a century architect of the City of Edinburgh, who had been in indifferent health during the last two years, died on Wednesday last week at his residence, 13, Laurier-road, Edinburgh. He had been intimately connected with the architectural development of the city during a period of about forty years, and was associated with many important municipal and public works. Born in Edinburgh on March 31, 1839, Mr. Morham was the son of the late Mr. Robert Morham, for many years magistrates' clerk in the city. He was educated at Newington Academy, the High School of Edinburgh, the Watt Institution and School of Art, and the Board of Manufactures Art School. He became a pupil of the late Rinald, and early acquired a reputation as an expert draughtsman, and was associated with that architect in the building of the Life Association Offices, Princes-street, Daniel Stewart's Hospital, and the Commercial Bank. After serving for three years in the office of the late Mr. David Bryce, R.S.A., he proceeded to London, where he spent four years with the late Mr. Alfred Nesfield. While there, he contributed to the illustration of "Murray's Handbook to the English Cathedrals." On his return to Edinburgh, in 1866, he entered the office of the late Mr. David Cousin, then city architect, as his chief assistant. Mr. Cousin was the architect of the Corn Exchange, and laid out Jeffrey-street and Chambers-street, which were constructed in connection with the important improvement scheme begun under the auspices of Lord Provost Chambers. On the retirement of Mr. Cousin, in 1873, Mr. Morham was appointed city architect, and held the office till his resignation in 1908. It was from his designs that the Old City Chambers were enlarged and reconstructed, and he was also the architect of the corporation's hospital for infectious diseases at Colinton Main, and for the reconstruction of the old police buildings in the High-street, the reconstruction of the North Bridge and North Bridge-street, and the building of the Waverley Market and the Central Fire Station. He was president at one time of the Edinburgh Architectural Association. Mr. Morham leaves a widow and a grown-up family consisting of a daughter and five sons.

Mr. Sydney Smirke, F.R.I.B.A., died at his residence in St. John's-road, Richmond, Surrey, on Wednesday last week, aged seventy years. He was in practice in Craig-court, Charing Cross, and was the son, grandson, and nephew of Royal Academicians. He had been a Fellow of the Royal Institute of British Architects since 1888. The funeral took place at Richmond Cemetery on Monday afternoon.

The partnership heretofore subsisting between H. A. Levens and E. N. Hartridge, auctioneers and valuers, estate agents, architects, and surveyors, Broadway House, Bromley, Kent, under the style of W. Levens, Son, and Hartridge, has been dissolved.

The receiving order has been made in the case of Harold Greenwood Marrian (described in the receiving order as Harold G. Marrian), Station-chambers, Twickenham, lately Greenwood, St. James's-avenue, Hampton-hill, architect, surveyor, and civil engineer.

Building Intelligence.

CROSBY.—The new parish hall which has been erected in connection with St. Luke's Church, Great Crosby, on a site in Liverpool-road, was opened on Saturday. The buildings comprise the conversion of an existing dwelling-house known as "The Hawthorns" into lecture-rooms, classrooms, caretaker's quarters, and a new parish hall. The alterations to the existing house include lecture- and club-room, seating eighty persons, with cloakrooms and kitchen on the ground floor. A lecture- and club-room, seating eighty persons, three classrooms for boys, girls, and infants, and caretaker's quarters are situated on the first floor. The new buildings are approached from the existing house by a corridor giving access to a crush-room. The parish hall, which will seat 500 persons, has a permanent platform extending the full width. Mr. Samuel Webster, of Bootle, was the contractor. It has been carried out at a cost of £3,500 from the designs and under the superintendence of Messrs. Woolfall and Eccles, architects, Castle-street, Liverpool.

LIVERPOOL. The B-holm of Liverpool laid on Tuesday the foundation-stone of the new extension of the church of St. Barnabas, Sefton Park. Mr. J. F. Doyle, of the same city, is the architect of the church, which will accommodate 664 worshippers. The style is Late Decorated. Stone will be employed for the columns, copings, window tracery, and other dressings, a rustic brick being used for the walls. Part of the base of the tower will be of stone, the body of the church. The contract for the first section, on which work has now begun, will embrace the nave, aisles, and transept, the foundations of the tower and porches, the drainage, heating and lighting, the cost being about £6,500. There will remain the chancel, the vestries, and organ-chamber, the base of the tower, and porches, the east-chapel, the boundary-wall, porches, the upper part of the tower. The vicarage will be independently provided for.

WALSSEND.—The new public baths at Walsend were opened on Wednesday. The baths, which front Lawson-street and Vine-street, are designed externally to harmonise with the adjoining municipal buildings. The swimming-bath hall (one of the largest in the country) is 118ft. long by 56ft. wide, and is planned with galleries, with accommodation for 700 spectators. The bath pool is 100ft. by 30ft., and runs from a depth of 3ft. to 6ft. 9in. A filtration plant keeps the water in a state of purity. There is provision for slipper baths, and the laundry is equipped with power-driven labour-saving machinery. The building is lighted by electricity. The architects were Messrs. Liddle and Brune, of Eldon-square, Newcastle; and Messrs. H. Cradlin and Son, Newcastle; and the engineer, Mr. T. D. Hall, Walsend.

At a meeting of the directors of Abroath Infirmary on Tuesday it was announced that the special building committee recommended the erection of a new infirmary at an estimated cost of £12,000. After consideration, the directors approved the recommendation of the committee, and were deputed to take in estimates, and to proceed at once with the erection of the new building.

A children's home is about to be built at Edinburgh, in the field situated at the corner of Porterfield-road and Crewe-road. The main buildings consist of an administrative block, pavilion, and a rather side-by-two-story double pavilion wings, accommodating 114 beds in all. These wings are connected to the administrative block by buildings containing dining-rooms, main corridors, and smaller wards on the upper floor. The administrative block contains staff accommodation, matron's and service accommodation, kitchen offices, and a central bath-room. Between the main buildings and Crewe-road is situated a precautionary block, containing two wards, medical inspection room, laundry, and disinfecter. The buildings, which are designed by the architect to the parish council, Mr. R. M. Cameron, will be built with brick and harled walls, and will have projecting red tile roofs.

COMPETITIONS.

BENFIELD SEWAGE DISPOSAL.—In the recent competition for sewage-disposal schemes promoted by the Benfield Urban District Council the following awards have been made: First premium, Messrs. Taylor and Wallin, Newcastle-on-Tyne; second premium, Mr. G. H. Simplot, Park-row, Leeds. The cost of the completed scheme will be £9,000 to £10,000.

DUNFERMLINE.—Fifty-three designs have been received for the institute which the Carnegie Dunfermline Trustees intend to erect in Nethertown-street, Dunfermline. The award of the assessor is expected to be made known at the end of this week; but the result had not reached us before going to press.

LYMINGTON.—Forty-four designs have been submitted for the proposed new municipal buildings at Lymington. The town council decided to invite designs from architects, and appointed Mr. A. F. Gutteridge, architect, of Southampton, as their assessor, and to advise upon the relative merits of the designs submitted, and select one for adoption. The entire cost of the proposed new buildings is not to exceed £1,800, and there has to be provided a good entrance hall and approach to the council chamber, offices, etc., an office for the town clerk and staff, a council chamber (which will also be used as a magistrates' court), magistrates' retiring-room, a prisoners' waiting-room, a committee-room, members' cloak-room, etc., and heating apparatus, coal-store, etc. The selected design will shortly be on view.

PORTLAND.—From the seventy-seven designs submitted for the Public Offices competition at Portland, Mr. Needham Wilson, the assessor, has chosen the plans of Messrs. Spier and Beavan, of Borough Chambers, Cardiff, with a premium of £50. Mr. E. Fitch, of John-street, Adelphi, was awarded the second premium of £10.

The council of the Architectural Association have arranged for a week-end visit to Liverpool, July 13 to 15.

A new synod hall is about to be built at Armagh at a cost of £4,000. Messrs. McLaughlin and Harvey, of Belfast, are the contractors.

The Widnes Town Council decided on Tuesday to give the Fox Hill, a favorite resort of Warrington, St. Helens, and Liverpool picnic parties, as pleasure-grounds, at a cost of £685.

Mr. Charles R. Wells, formerly a well-known master builder in Newcastle-on-Tyne, who had retired from business, died at his residence in Westmoreland-road, Newcastle, on Sunday, aged 82 years.

In restoration work at Little Steeping Church, Lincolnshire, a stone step has been found to be an inverted monument bearing the recumbent effigy of a priest and some wording in Norman-French. The figure is believed to be that of the rector who built the church in the thirteenth century.

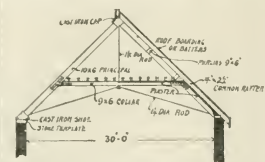
The formal opening of a new water supply for Fraserburgh took place at Bogensourie, near Strichen, on Friday. The source of the supply is at Federdatter, fifteen miles from Fraserburgh. The supply equals a flow of 100 million gallons in four hours, and the cost has been £52,000. The engineers were Messrs. Carter and Wilson, Edinburgh.

The Chester Corporation received on Tuesday the sanction of the Local Government Board to a scheme for generating electricity by water power, obtained from the River Dee on the site of the famous Dee mills. The supply of electricity thus obtained will be auxiliary to that derived from the corporation's power-station. The scheme sanctioned amounts to £14,000, of which over £7,000 are for turbines and dynamos, and £3,000 odd are for buildings.

As a memorial to her late husband, Mrs. Charles Heywood, of Chasely, Pendleton, is building a church for the Brindlebeath district of St. Thomas's parish, Pendleton. The site is in Sharp-street, near the river, and is owned by Mr. Heywood. The architect is Mr. F. P. Oakley, A.R.I.B.A., of Haworth's Buildings, Manchester. The church, which will have seating accommodation for 400, will follow the lines of the existing St. Anne's Church, now much too small for the requirements of the neighbourhood.

...cases are... but such does not seem to be the case here. It would seem to be an... of the question of what constitutes... a new street. The only Act bearing on... is Section 17 of the Public Health... Act, 1902, which, however, is of no... value unless adopted in the district. The cases on... the subject are many and complicated. Refer to... v. Barton Eccles L.B. (1888), eight appeal... cases, 208 St. George's L.B. v. Ballard (1895), Law Reports Q.B.D. New Southbridge R.D.C. v. Rufford... No. 12 Times Law Reports, 129; Devon... v. Corporation v. Tozer, No. 10 Times Law... Reports, 107, and a recent case—Attorney-General... v. Darnley (1911), 10 The Times, December... 8, 1911. As a summary, it may be stated that... where new buildings are erected along a highway... mainly by the inhabitant at large, and the highway... is not interfered with, and there are no... buildings on the opposite side of the road, the local... authority cannot require the buildings to be set... back so as to make the road of the width required... by the by-laws for new streets; the last-mentioned... case fairly clearly establishes this. Unless the... by-law in force in the district specifically state the... form in which plans are to be submitted, the in-... structions of the council as to returning prints (so... long as these comply with the by-law, in other... respects) are ultra vires.—W. H. Taylor, Nuttall, Nottingham.

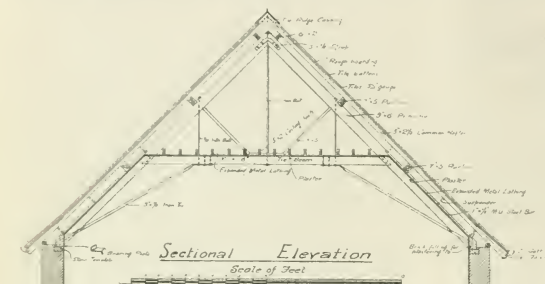
1910S.—CEILING OF HALL.—"Larne" requires the most economical form of composite roof-truss at 15 ft. centres over a span of 30 ft. Only observing his diagram, I am of opinion that the truss designed



to pass through, and the top end be nuttered, either method being effectual.—Henry T. Cook, 22, Elmfield Mansions, Bulham, S.W.

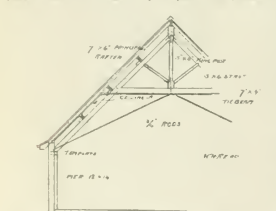
PARLIAMENTARY NOTES.

LONDON TRAMWAY EXTENSIONS. The Select Committee of the House of Commons, Sir Luke White presiding, has made further progress with the London County Council Tramways and Improvements Bill. They passed the proposal to construct a short double line of tramway at Vauxhall Cross to relieve the congestion of traffic there caused by the crossing of the routes over Vauxhall Bridge, the Albert



by me in the accompanying drawing is most economical, and at the same time, practical and stable. Timber, best yellow deal; the surfaces of principal rafters and tie-beams projecting from outside, wrought and chamfered; but, generally in, except at those in joint between tie-beam and principal rafters, which are to be in.—William H. Adams, Architect, Council House, Romford.

1910S.—CEILING OF HALL. A truss of the form sketched is most serviceable, being a kind of king post truss with elongated principal rafters, tied in



...the truss... will carry the... of short struts, tied to truss. An exposed... will be wrought and chamfered, the same... as the purlins, etc.—K. H. Road, Lecturer on... Construction, Grosvenor Technical Schools.

—CEILING OF HALL.—In reply to... the drawing annexed will be quite clear... the necessary dimensions are given. The ceiling... with rafter for support of ridge, and the... will be obtained at most favourable, but prob-... the truss would need a little alteration, a... of the addition of the timbers. The... of the truss, and below the ceiling will... towards the connection between the rafters, and... of bar 1 in the head and end... towards into tension by nuts on the end... the rafters, and a few may be fitted in the centre... and a few may be provided on the... on the lower end of kindred for the

Embankment, and Wandsworth-road. The Committee also passed a proposal to reconstruct an old horse tramway from George-street to High-street, Woolwich. It was explained that Dockyard property would be acquired and the road made wide enough for a double electric line except for a short distance where valuable property blocked the way. The Committee also sanctioned a clause empowering the Council to make and enforce a by-law, subject to the approval of the Home Office, to compel persons waiting for trams to form into a line or queue. The Committee at a further sitting sanctioned the proposal to construct a double line from a junction with the existing terminus at Rushy-green along Bromley-road to Southend-village, opposite Beckenham-lane. The length of the extension is a little less than a mile and a half, and the total will be £70,300, of which £13,300 is for road widenings. The Lewisham Borough Council contribute one-third of the cost of widenings. The Committee also sanctioned a proposal to add a single trailer behind a

NEW PUBLIC OFFICES IN DUBLIN.—In the House of Commons, on Monday, Mr. Masterman, Financial Secretary to the Treasury, informed Mr. Brady that he had decided to authorize H.M. Board of Works to invite tenders as soon as possible for the erection of new public offices in Upper Merion-street, Dublin.

Mr. T. P. Frank A.M.I.C.E., city engineer and sanitary inspector to the Ripon City Corporation, has been appointed borough surveyor and waterworks engineer at Newark-on-Trent. There were 180 applicants.

A Local Government Board inquiry was held at Liverpool on Friday, before Mr. H. Sheffield Birtwell A.M.I.C.E., city inspector, in the application of the parks and gardens committee for sanction to borrow £8,500 for the purpose of laying out the necropolis as a public garden, and £1,645 for a public recreation-ground in Donalish-street and Oakfield-road. No opposition was offered.

WATER SUPPLY AND SANITARY MATTERS.

ALNWICK AUGMENTED WATERWORKS.

The Local Government Board have approved the scheme for augmenting the water supply of Alnwick. Captain Jennings, in Alnwick Park, near Hahne Abbey, will be tapped, the water conveyed to Canonage, where it will be pumped into a high-level reservoir near Swansfield Park. The supply into the town will be divided into upper and lower services. The estimated cost of the scheme in round figures is about £7,500. The engineers for the scheme are Messrs. Taylor and Wallin (Mr. Harry W. Taylor, A.M.I.C.E.), of Newcastle-upon-Tyne and Birmingham. Tenders for the works are to be invited at once.

MIDDLEBROUGHT.—At a special meeting of the sanitary committee of the corporation, the borough surveyor, Mr. S. E. Burgess, submitted a scheme for the laying down of a new sewer with pumping station, for the protection of flooding the "Marshes" and Newport-road districts. Mr. Burgess proposes that the sewer should run along Snowden-road, North-road, Boundary-road, Cannon-street, Marsh-street, along "Newport-road" to the armistice road, along Glebe-road, Wilson-street, Dale-street, Baxter-street, Gilkes-street, Bremlah-street, Rose-street, and Harris-street. That arrangement, the report stated, would satisfactorily drain the Marshes, Newport-road, and Glebe-road districts, and the sewer in Snowden-road was sufficient to drain the area taken by the Acklam-street sewer, which area should be connected to that sewer. It was proposed to locate a pumping station on the land owned by the corporation adjoining the Snowden-road stables. The pumping plant to be installed was three centrifugal pumps of capacity guaranteed to throw 20,000 gallons each per minute, with a guaranteed lift of 19 ft. The pumps would be worked by electrical motors, each motor at least 175 H.P., and the pumping capacity would therefore be 3,600,000 gallons per hour. The scheme was so designed that the dry weather flow of sewage and slop-water would pass to the sewer in Station-street and away to Cargo Fleet, and only at times of heavy rainfall would the outlet at Snowden-road come into operation, so that that outlet would become a storm-water outlet. Mr. Burgess's estimate for the scheme was carried out, with difficulties with regard to flooding at those areas would be obviated. Mr. Burgess referred also to the suggestion that conversion of privies into w.c.s should be carried out at all houses and premises to which access for scavenging purposes was by narrow passages and common courts and yards, and said, as it was not possible to traverse those alleyways by sanitary carts, scavenging work was difficult and expensive. The actual number of houses and premises of that nature was 8,735, and if all those were provided with a w.c. the total cost for installation would be, say, £48,042 10s. Deducting from that £25,500 borrowed in 1901 for the conversion of the Station-street area, and adding £4,557 10s. for contingencies, the total cost would be £50,000. By the abolition of privies and installation of w.c.s to the whole of the property with narrow back passages and common courtyards, the sanitary welfare of the town would be much improved, while the saving estimated for scavenging would be 25 per cent of present cost. The committee received the report, and without discussion adjourned it to a later date for detailed consideration.

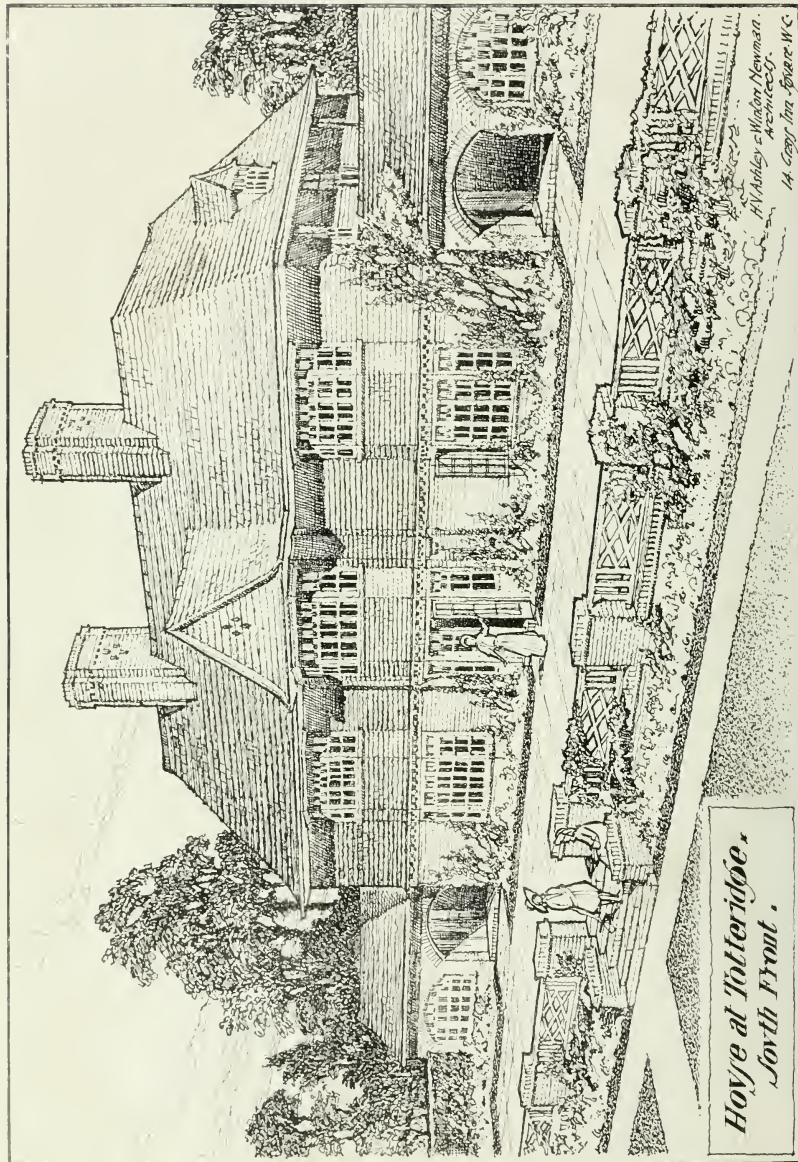
SHREWSBURY WATER SUPPLY.—Lord Barnard, in the presence of the mayor and members of the Shrewsbury Corporation, on Monday, elaborated the new engines and pumps which have been installed at the Corporation waterworks, at a cost approximating £4,000. This brings to a completion the scheme for giving to the town an adequate supply of water for drinking and other household purposes.

The Armagh Rural District Council has resolved to erect 76 labourers' cottages in the district, at an estimated outlay of £15,150.

Austin Willard Lord has been appointed director of the Architectural Academy of Columbia University, New York, and will begin his duties at the opening of the next academic year. Mr. Lord was formerly director of the American Academy in Rome.

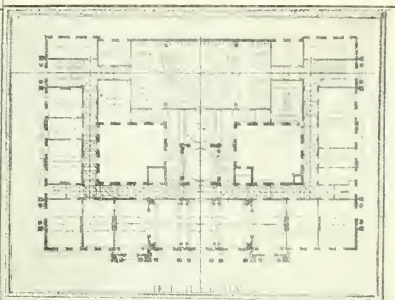
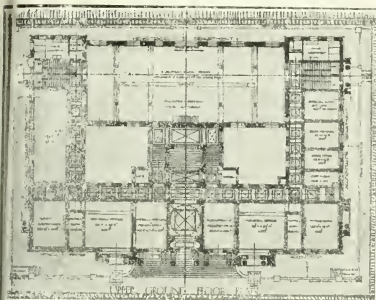
It is reported from Simla that the town planning experts consulted with regard to the new town of Simla have been officially decided against the Durbar site for the permanent capital. They have selected a location in the south-western suburbs of the city, which offers good drainage and a fine prospect. The only objection to it is its distance from the recently-selected site of the temporary capital.

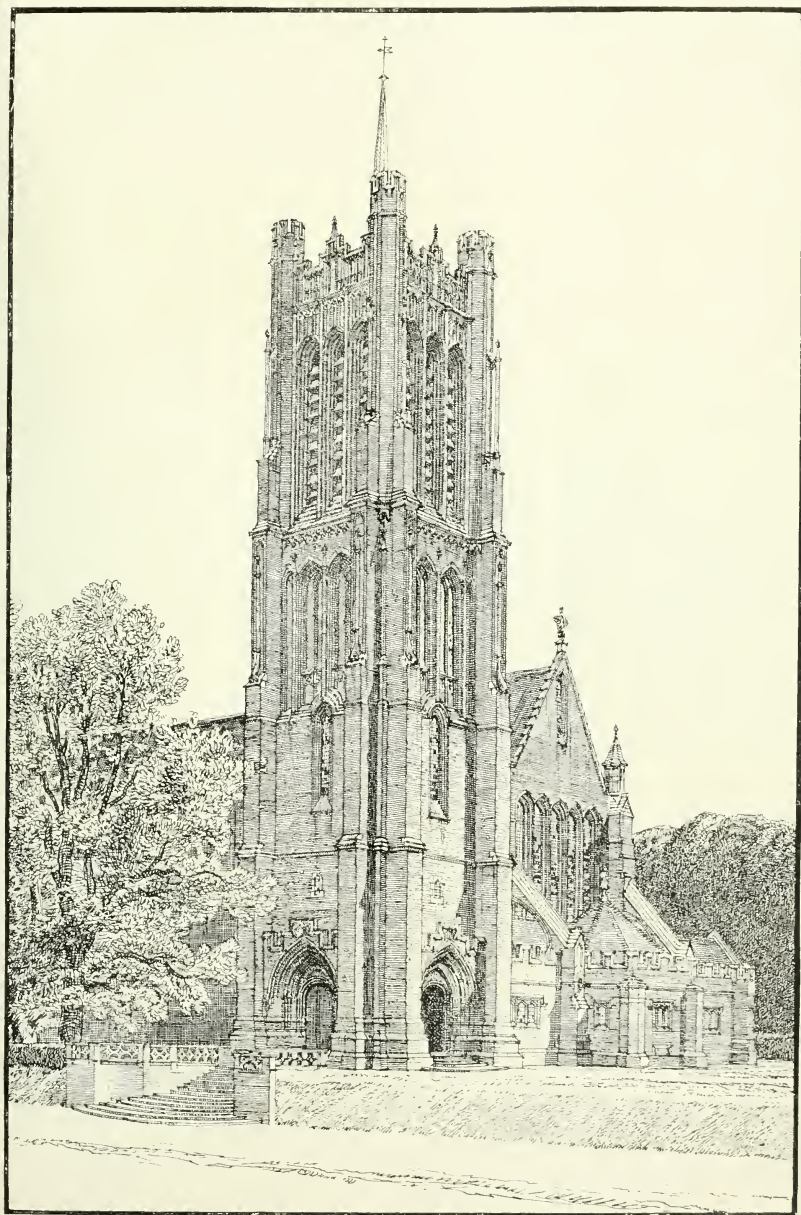
The estates committee of the corporation of Lichfield are formulating a scheme for the construction of a new main road, thoroughfare from Lichfield-road to the Launias-coles. The new road will, if the project is accepted, have its commencement opposite the Green Common, and close to the Nursing Institute in Lichfield-road. At this point, until it merges into the Weston-road opposite Corporation-street, the route will cover nearly half a mile, and it will be necessary to erect a bridge over the River Sow and several culverts. The total cost of the scheme is estimated at between £7,000 and £10,000.



*Hove at Totteridge.
South Front.*

*H. Ashley & W. G. Newman.
August 1911.
14, Grafton Road, W.C.*





CHRIST CHURCH. SUTTON, SURREY.—Mr. D. G. ROUND, Architect.

THE BUILDING NEWS

AND ENGINEERING JOURNAL.

Effingham House,

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Strand, W.C.

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OUR ILLUSTRATIONS.

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"LOOKING BEFORE AND AFTER."

Some time before the middle of the nineteenth century, an architect, who, if he was not great, was anyhow great enough to have detractors, built the "Egyptian Hall," in Piccadilly. Perhaps its name was given to it in a spirit of admiration by some boy who would never have dared to explore the land of the Pharaohs himself; perhaps it was assigned it by the architect, sick of his work, and weary of its ways; for, weary or not, he seemed to have built no more Egyptian Halls, and what he seems to have fancied was the "Egyptian style" did not find popular favour. Even the Moore-baited Prince of Wales did not leave the beauties of the Bermudas for the browner race on the Mediterranean shore, and Byron could write about "Maids of Athens" before his worth had been recognised there while he was at death's door in Greece. (This fact, or fiction, we glean from his private letters to intimate friends, edited by Miss Yewbury, and published not many years after Byron's death.)

But the "Egyptian Hall," far as it always was from any Egyptian age of architecture, may stand to-day for one of the earliest of our national attempts to mark styles by what we once heard a Cockney describe as their "anciençy." His idea was that the late Mr. Butterfield, in restoring an old church near the Lands End, had "obliterated its anciençy." Perhaps he had. It was what many church restorers did 40 or 50 years ago, with many old churches, and in worse ways than Mr. Butterfield could fairly be charged with. It was the spirit of the times: a time far away from ours, and a world far away from it. In its own day it was looked upon as the "age of beginnings": the "age of the patriarchs," who then were supposed to find time for all they did, and all their successors invented, in the five or six thousand years between Noah's flood and to-day. But since then Noah's flood has been moved by centuries, and centuries of centuries, by scientific men. Nobody "seems one penny the worse," or calls himself a Socialist because a fit citizen he could not subscribe the 39 Articles with some simple faith in which his grandfather's name was appended to them when he entered his college. The old "Egyptian Hall" (we mean the Piccadilly one) was just one of the first moves of the last-century shakings; and every successive one has been twice, or ten thousand times as great as its predecessor. In the mean time, it is pleasant to see how the old headings persist, at least, in the few class journals.

We were saying that the Piccadilly "Egyptian Hall" was the last English relic of the time when it was thought a holy and orthodox thing to work in a style which dropped out of use "long, long ago," and if you could not really work in it, to pretend you did. The people who saw your work were most of them, very easily taken in; and these who saw through the work did not dare to say so. All the geese of the period were ready to cackle behind them, as those that remain still mostly do; and some of us still remember the attempt to badger Professor Owen into an admission that death could not have arrived in this world before sin. The professor, mild as he was, would not put his name to a falsehood; and the whole assembly of drapers' shopmen could not persuade him. But the assembly is still here, and still ready to discuss whether a Christian is at liberty to eat in an un-Christian way, and to do un-Christian things. Meet of them think he is. Perhaps, with a little more thought, they will be doubters again; but all depends on the directions they receive (from below, if not from above), and on the wages they get. If there was ever anyone hopeful enough to suppose that to work, if we knew how, just as the ancient patriarch did, would bring us to work on their moral system (imperfect as it was), he hoped for more than he was likely to secure. On the other hand, the builder of to-day can get good bricks, and can lay them in good mortar, if he can pay the cost, which is more than the fathers of the faithful could be sure of. Sun-dried bricks, either near the Nile or the Euphrates, return to that pale mud "from whence they spring." Wood-dried ones are far more durable, and these we can get: we want colour in them; kiln-baked bricks may be better, even if our morals are, if possible, no worse than those of Abraham and his earlier descendants.

We architects should be having a better time than we looked for, if the goodness or badness of a century's art implied the moral goodness or badness of the men that made it. That is one of the goodly-geodly theories of the past—perhaps to be brought back some day as a new thing, when its age has been forgotten. Ruskin, alas! is dead, and no one now can form absurd fancies by the power of rhetoric, or people with a memory for facts. Besides, artists, like nature-students, look farther back than they did do. "Before Abraham was" no means only a little way. At what epoch exactly did Babylonian civilisation begin, and what, in long procession, came before it? The beginning of architecture was not near the beginning of art; nor was this, by

many ages of years, the beginning of design. The forms men feebly tried to imitate when they began to build—the fishes and water-insects—had used up endless lifetimes in bringing to perfection—the perfection, such as it was, when Plesiosaurs and Ichthyosaurs were the food of critics who had to be satisfied. The antiquaries who thought that an "early" style must mean a style at least as early as Abraham, or antiquaries of the school Pope ridiculed, who said:

"Nothing there is to come, and nothing past;
But one eternal now does ever last."

And they were all but ready to say how long it had actually lasted. Darwin, a mild-mannered man, moved the break in creation from the days of Moses back to the days before the Flood, and, with others, showed that most of the things we see must have been first seen even as long ago as that. He opened the gates of the past for us poor sand-blind dwellers in the present, and these, as time goes on, will open wider and wider.

But we have had enough of copying the past. Is it not time to leave something for the distant future to dig up and re-past? Alas! this is beyond our power. We cannot even say what will be the practical wants of the railway-station (if any railways remain 100 years hence), or of the factory (if factories have not vanished also); then we can make the model of a steam locomotive to suit the days of Edward I. That eminent monarch, had he lived twice or thrice as long as he did, would have seen the world, for practical purposes, doubled in size. But he lived and died, with America still unimagined, and Australia unexplored; the countless islands of the sea unvisited, save one in an age by some Northern rovers, and both the Poles unseen by white men. We have got on pretty well since Conway Castle and St. David's Church arose; but it would have puzzled the prophets to say whereabouts we should find ourselves in Anno Domini 1912. And it would puzzle their descendants now to say where we shall be in a hundred years more. Astronomers can tell *more or less* in what direction, and at what rate the sun and its planets travel. In the course of time, or almost of eternity, some old stars will have seemed to pass away, and some new ones will appear. But earth changes faster than heaven does; and the world we live in will be a different world long before there is a different sky to arch it in. The future depends on the inventors, and on what they are pleased to invent. They

cannot make life less weary than it is, though they make it a little bit longer or a little bit shorter.

Fifty years onward from to-day? To-day it is to name a date which few of us, editors, reporters, contributors, or advertisers can hope to see. We may have seen our first may be doing our best to be comfortable and then; but human memories are brief affairs, without bags of coin to lengthen them out; and such bags as few mortals can carry. Long service may witness the lack of them in a very few cases. The world has not forgotten Wren yet, though he was near 50 years of age when B. W. Church was built; nor the men who dared to raise Salisbury spire, or Winchester nave, or the arcade of York Minster. Some of these names survive, not much from the goodness as the bigness of the places they built; but commonly the bishops who consecrated them took both their honour and their name. As that very earthly hymn says:

Their honour and their breath
Were taken both away;
Joined with the wick, in their death,
And made as vile as they."

But this was only true to the letter of a working man here and there. Most of them, like the artist who managed the sculpture in the west front of Wells, received their weekly wages, though their glory was suppressed, and their fame given to others. Much good may it do them. "When that just Judge, who would be kind, Shall have few venial faults to find."

FEDERAL CAPITAL CITY, YAS CABERRA, AUSTRALIA.

THE SELECTED DESIGN.

We announced the result of this international competition on May 31, and from time to time have summarised and commented on the leading facts of the contest, which led to much controversy both at home and in the Colony. Mr. Walter Burley Griffin, architect of Steinway Hall, Chicago, was awarded the first premium of £1,750. The assessors were Mr. J. H. Smith, President of the Victorian Institute of Engineers, Mr. John Kirkpatrick, Architect, and Mr. J. M. Coane, of the Surveyors' Institute. Our illustrations to-day of the chosen design necessarily are much reduced, as the fourteen drawings submitted by Mr. Griffin measured five feet by two feet six inches each, and these were delineated on a very small scale—400ft. to the inch—on account of the gigantic character of the scheme.

The very hilly contour of the site created several difficulties in working out the problem. A population of 25,000 is assumed for the outset, and the increase is estimated to follow the proportion of the present population throughout the commonwealth of 1,421,795 persons. The designs include Houses of Parliament, official residences for the Governor-General and Prime Minister, Public offices and many departments, Courts of Justice, Places of Worship, Mint, National Gallery, Public Library, State House, Printing Office, Government Factories, University, Technical Colleges, Museum, General Railway Station, Military Barracks, Courts of Justice, Hospitals, National Theatre, Central Power Station, Gas Works, Markets, Stadium, Parks, and Gardens, commercial and residential and industrial purposes to be accommodated. The big lake, as seen in the plan which wins the prize, forms a feature of the city, fed by the waters of the Murrumbidgee river, which has an agreement with its tributaries, of 700 square miles, with a rainfall of 20 in. annually; 100 in. along the normal evaporation from extensive areas of water surface. The coverage by gravitation will be water carried a six miles' distance from the city to treatment tanks at a level of 1,800 feet. The water is intercepted. With so many requirements and detailed a scheme much

COMMONWEALTH OF AUSTRALIA FEDERAL CAPITAL COMPETITION



CITY AND ENVIRONS.

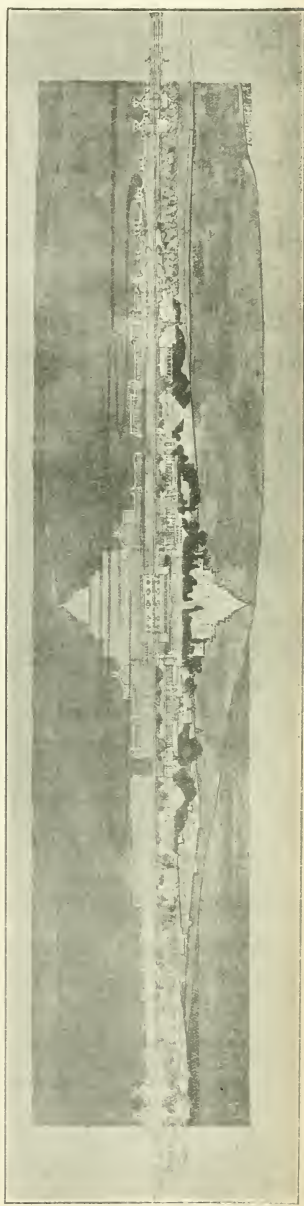
a necessity must be subject to contingencies, and the railway system is, perhaps, the greatest of chief difficulties coupled with the tramway lay-out, having countless points of location and distribution besides the problems incidental to varying levels. This town planning scheme is the largest yet attempted, and the plans are naturally of great interest.

The Royal Institute of British Architects and the Institute of Architects of New South Wales declined to allow members to take

part in the competition, owing to the unsatisfactory conditions insisted on by the Australian Home Secretary. It is to be hoped that the results of the competition will be as satisfactory to the Government of Australia as the terms imposed on the profession were disappointing to British and Australian architects who, under the circumstances, were precluded from responding to the invitation to compete. The second prize was won by Mr. Eliel Saarinen, of Helsinki, Finland (£750), and the third



SECTION THROUGH CENTRAL BASIN FACING GOVERNMENT BUILDINGS.



of £500 was given to Mr. Alfred Rue Eugene, Flachat, Paris. No English or Australian architect, therefore, could enter. Some English architects com-
peted, and we have been invited to illus-
trate their designs. This we have declined
to do, because we think abstinence was their
aim. Mr. Griffin, of course, was bound by
other considerations.

BUILDING NEWS' DESIGNING CLUB.

FOR A BRANCH INSURANCE OFFICE.

We herewith illustrate the three selected designs, herein referred to. Such a subject as this, for a detailed street-front elevation, lends itself to any lengthy criticism, and the respective merits of the competitive designs submitted had to be judged primarily as a façade treatment, no plans having been asked for. Space on the sheet would not, as a matter of fact, permit of plans being included. We are, however, bound to consider evident and elementary a provision as that of ample lighting, because, irrespective of the lay-out of any plan, light in every event is essential, whatever the internal contrivance of the building might be. Naturally enough, this question, therefore, has to be considered in judging these designs, and immediately we are confronted with a difficulty, because it is clear that "Why Not" submits, on the whole, the best architectural proposal in regard to breadth in handling, and he is also quite distinctive. This quality, nevertheless, has been secured by the sacrifice of light to the offices, and we therefore must decide that this objection is fatal to its adoption for the first place. Moreover, this lack of light is most particularly manifest on the ground story, where every superficial foot of floor area is of the utmost consequence, seeing that those engaged in business should be enabled to see what they are about without artificial illumination. "Why Not's" only provides one window in this stage of the front, whereas "Five Towns," the next best man architecturally, makes room for two, which allow almost double the glazed superficial area of "Why Not's" one; and as these windows on the ground floor have all semicircular heads, we can better compare them. Besides, "Five Towns" admits more light by way of its porch, having provided a particularly large gateway, where the likelihood of a little window in the return wall of this projecting feature, "Why Not's" portal is very low, and has no side lights. On the upper floors "Five Towns" gives three windows in lieu of "Why Not's" pair, so that, instead of some 7 ft. 6 in. run of window, about 10 ft. 6 in. are obtained. It is true that in this comparison there would be a little rebate to allow in favour of "Why Not" in respect of greater height; but this difference is slight, and "Why Not" uses more bars to the sashes, which would count as a set-off to some extent. We do not wish to over-empiricise trifles; but from what has been said it will thus be clear that practical con- siderations must decide, in a case such as this, and moreover, "Five Towns" might justly say that had he been less mindful of the exigencies of business, and so pre- pared to ignore them as "Why Not" has done, he, too, could have emulated this more monumental manner.

There is no need to perambulate; it is better to go direct to the point, without any apology for doing the obvious thing. We realise that "Five Towns" has, in a way, anticipated us, and that the exigencies of the case, and worked it out with no small amount of refinement and good taste. No- where the pattern of façade work which he has taken as a precedent resembles some of the suggestions produced long ago by our old masters of Metropolitan squares, and not only so, but seen at *Hydon* in London, but Bath, and *Debenham*, and other recollected places. This fanciful formation of eleva-
tion, setting, and on such well-known lines, thus seasons this criticism by urging that
the design is somewhat commonplace; and if
this be so, we may remind superficial critics
of the floridness, such as even the most gifted

must recognise, in solving such a problem
as this in a new and satisfactory manner,
avoiding at the same time the facile fault
into which "Why Not" has inadvertently
stumbled. It is essential likewise, for
insuring architectural quality, that the
essentials of proportionate scale shall be
observed. Unduly large openings in a small
front always mar the balance of its lines.
"Why Not," in making his clever design, has
not quite realised the importance of relative
values. The depressed shape of his portal
gateway is out of harmony with the fenestra-
tion above it, owing mainly to the needless
introduction of mullions, with the result that
unduly tall openings are employed, which
have an inconspicuous look compared with
the broad disposition of the masonry in this
façade. After all, it is the voids, as holes
in the wall, which always most assert them-
selves in execution. Tricks of draughtsman-
ship are often strangely at variance with
these facts, and, as it happens, "Veritas,"
whose design we place third, actually goes
out of his way to counter the effect of his
masonry, and he trifles with them to
such an extent as to reduce their apparent
width by at least a third, and in the single
lights by half, owing to his silly dodge of
casting a kind of "back-line" shadow by
leaving the glass panes on the left-hand side
and below the horizontal heads of the win-
dows white, thus reversing the common
method of casting shadow by darker
shading. Such a faking folly does the design
by "Veritas" an injustice. We make an
allowance, however, for the result of this
mistake in not allowing the actual voids of
his elevation to be correctly expressed; and
as we had no hesitation in placing "Five
Towns" first and "Why Not" second, in
accord with "Veritas" this position of honour
we consider that in execution this
building design would justify the preference
here given to it, judging, as we endeavour
to do, according to what we estimate would
be the ultimate result of his elevation. The
pitch of his gables is somewhat too acute to
be exactly pleasing, but generally his eleva-
tion looks unpretentious and admirable. The
cornice over the entrance is rather nondescript
in character, while the advantage of height
to insure ample light is wanting, as in the
porch of "Why Not's" proposal.

"Mak" sends a sober, solid, and in many
ways a commendable design, if deficient in
interest, though practical, and unexceptional
as a square and unambitious performance.

"Black Diamond" would have scored higher
but for the poor drawing of the non-essential
cornice, which would have been better
omitted, and his front exhibits no recogni-
tion of any one dominating line such as a
good bold cornice would give. The shading
on one hand of the windows is no improve-
ment, particularly in the arched ones on
the ground floor. The semicircular-headed
dormers look commonplace, and are very
ordinary.

"Burch Wallis" has made a striking effort
to achieve a bold piece of design with Ionic
pilasters running up to the second floor in a
line with the crowning cornice of the eleva-
tion, which is thus divided vertically into
two equal halves. The width of the porch
is extended excessively, so that the façade
suggests a design much larger behind it
than the actual intentions warrant.

"Jorvic" dwarfs his design by dropping his
main cornice to the second-floor level, treat-
ing this story above the cornice as an attic,
surmounted by a steep roof, lightened by
three good dormers. The proportion of his
portal is narrow and tall. The proportion of
his windows seems to be elegant and refined. Some
might call the design smug-looking; but his
care and neatness would stand him in good
stead—perhaps more than an artfully dashing
endeavour would—if difficulties cropped up
some day or other, as they will do in
building. An architect's intentions should
always be clearly expressed in working draw-
ings like these.

"Artic Wilton," too, is mindful of such
things, but risky with his rain-pipes built
in the wall horizontally to discharge the
water beyond the dormers, thus laying up
trouble for somebody some day. His ground-
floor windows are truly proportioned, and

the strings look weak in scale and poor in
contour. The big consoles, supporting an
inconsequential-looking cornice at the top of
the façade, are overpowering. The window-
dressings are fussy and inharmonious.

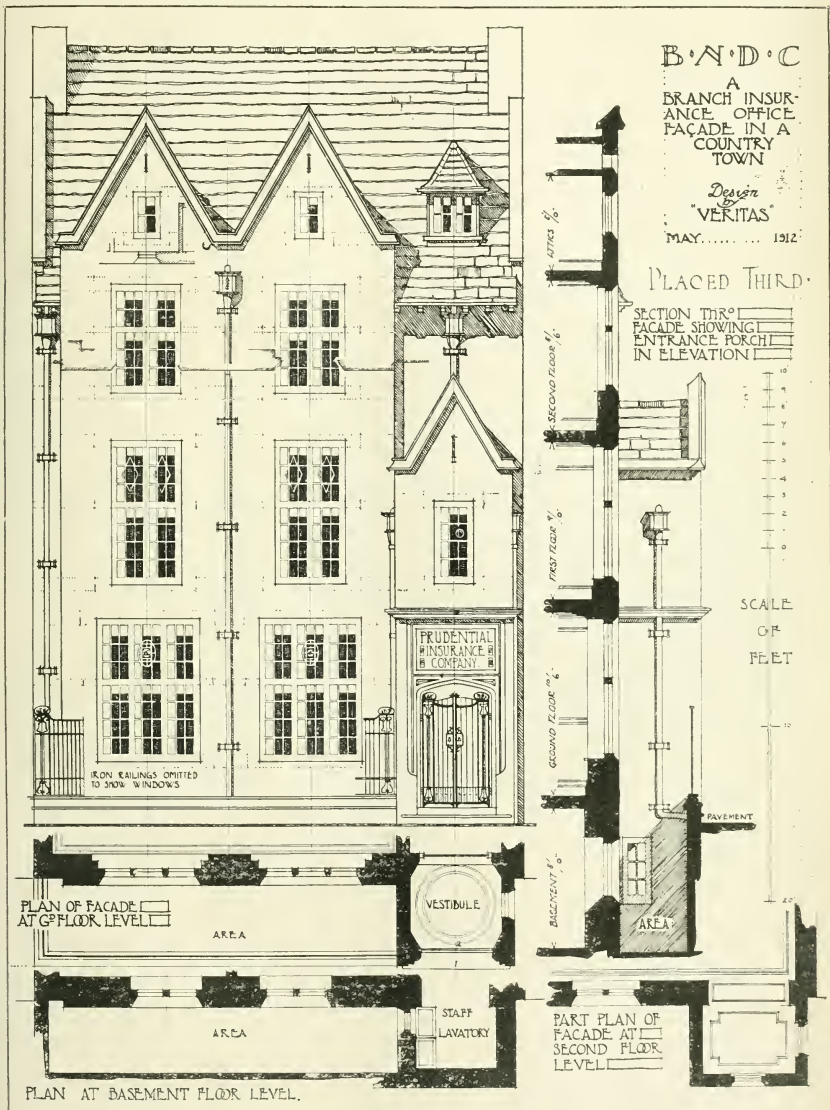
"Country York" indulges in very
diminutive windows, which look out of
harmony with modern business premises. He
has somehow given his front a box-like
appearance, treating it as a cornicelless build-
ing, and indulging in broken strings made
up of fanciful detail, although it is true that
the composition is distinguished by a degree
of breadth which is pleasing. No stack-
pipes are provided, and this may be due to
the fact that no space is left for them after
mutilating the before-mentioned string-
courses.

"City" can scarcely claim the merit of
success, and this reflection is due to the
deficiency exhibited of any adequate knowl-
edge of style. In saying this, it must not be
understood that we mean to insist on the
adherence to any particular period of archi-
tecture, if we thought it desirable to treat
style as a literal repeat of some easily-
recognised exemplars capable of tabulated
ornidation. Nothing could be further from
our intentions, but for good style the treat-
ment must be based upon a scholarly handling
of architectural lines such as can only be
evolved by culture and the outcome of an
acquaintance with historic design. This is
a vastly different thing from any mere appropria-
tion of ready-made detail of previous
ages, of which the modern world has had
more than enough. One word as to the
Club's rules, seeing that the author has
omitted to put his name and address on the
back of his drawing as stipulated.

"Scott's" scheme is by no means unworthy
of commendation, because it presents refine-
ment and exhibits a recognition of good
detail—such, for instance, as the Greek fret-
patterning shown along the building in a
laboriously careful way, judged as an essay
of mechanical draughtsmanship. We cannot
say we like his portico, which reminds us of
the dull monotony of the countless examples in
the Grosvenor Estate at Piccadilly. The rusticated
piers introduced between the windows on the
ground stage, as well as on the first floor,
give a touch of originality of treatment to
a composition which has the advantage of
being self-contained. The failure of this
design is mainly due to the absence of
homogeneity. Possibly
we want to say that not proved so conspicuous as it
appears in this drawing. We cannot over-
look the doubtful way in which the rain-
water pipes are managed. In the lower part
the mouldings project in front of these tubes,
while elsewhere the ironwork seems to deter-
mine the lines of the masonry ashlar-work,
which looks like a cart-before-the-horse
arrangement.

"Cashed" submits the concluding design.
He has shifted his porch towards the centre
of his elevation, arranging a big window to
the right hand of the entrance. Consequently
the author scarcely complies with our in-
structions as to its intended position. An
accidental appearance, therefore, is given to
this projection, which, rather than an unhappy
effect of relation to the rest of the front,
carried up, as it had to be, through the first
floor. "Cashed," however, is neat in
drawing and reserved in his manner of treat-
ment, both of which, of course, are com-
mendable qualities.

"Liver," according to the postmark, sent
his design on Monday, and so it reached us
on Tuesday, consequently he leaves us no
chance for placing him well, as we certainly
should have done. Rules stipulating the day
for receiving drawings cannot be ignored.
His scheme evinces much merit, being quiet
and dignified. It is also well drawn in a
clear, bold outline. The windows, perhaps,
are none too ample, and the detail has been
much overdone, increasing their height,
even to the sacrifice of the cornices inside the
offices. The pedimented heads to the first-
floor windows seem to be a trifle massive,
though projecting so slightly as they do,
might modify the effect of the elevation, in
execution. It is not quite clear whether the
diagonal pattern shown for the parapet is



meant to be pierced. Anyhow, that detail, in any case, is of doubtful merit, and we do not like the rusticated narrow pier on the left hand of the façade, presumably intended to balance the treatment next the projecting porch, which likewise scarcely justifies itself. There is no recognition of this set-off at its

base or at its head, slight as the break may chance to be. The pattern of the area railing seems to require an ending of its own, and we carefully specified that the frontage must be self-contained. However, we may say "Liver" has greatly improved.

"A Branch Insurance Office Façade, to

be built in Portland stone on a level site 25 ft. wide, out to out, and situated at the main thoroughfare of a country town. The adjacent three-story houses are 5 ft. from the frontage line, and the new premises must be made to line with these buildings right and left; but a porch towards

the right hand of front is to break forward, the projection continuing up through the first floor, and coming out as far as the passage at rear line of public pavement. There are to be no steps down in the front. The private entrance is at the back of the building. The elevation is to be set out from the ground floor 1ft. 6in. above the basement level. The basement to be 8ft. 6in. from floor to ceiling, the ground floor to 10ft. 6in. ditto, first floor 9ft. ditto, second floor 8ft. 6in., and attics 8ft., with slopes in roof. The ground floor front to be occupied by public offices, the first floor with offices, insurance clerks, and basement to be used for policy and strong rooms and clerks' storerooms. Two top floors devoted to care-taker's residence. Plans only of the frontage and area required, and section to show projecting part of the facade in elevation. Wrought iron gates to open inwards at the main entrance, and wrought-iron fence 6ft. high to area, including stone plinth base to be shown. All cornices and strings, etc., must return in themselves, so as to end without projection beyond the 28ft. width of frontage. Plans may be indicated on the elevation, but not in such a way as to injure the architectural completeness of the front in plan drawing. Scale 1/4 in. to the foot. (The sheet of paper is not large enough to take in scale comfortably.) No view asked for.) This is the concluding subject for the annual year 1911-1912. The next session will commence in October, when the awards for the past year will be given.

SOME NOTES ON THE USE, MISUSE, AND WASTE OF PUBLIC WATER SUPPLIES.—CAN MISUSE AND WASTE BE REMEDIED?*

By WM. WHITEHOUSE, M.S.E. (Member).

The quantity and purity of water supplies have always been subjects of importance, and every year receive more and more attention. In urban centres and rural districts the desirability of a public supply of water, and the larger quantity it generally found to be one of the most pressing questions. In the rural districts outbreaks of disease have now so frequently been traced directly to polluted wells that it can safely be said that at the present time the question of universal pure drinking-water is one of primary importance to all classes of the community. The preservation of the quality as well as the quantity is, therefore, a serious responsibility upon the guardians of public water supplies.

USE.

In speaking of pure water, I hope we shall consider the question from a common-sense point of view, for when we speak of "pure water" we mean "wholesome water." Sir Wm. Crookes has stated: "There is a great deal said about purity, and a good deal of nonsense talked. When we hear that we are glass of water we drink contains microbes by the thousand, it is rather a shock. If we had too pure water, too much sterilised, we should all starve. A friend of mine tried to bring his children up on hygienic principles, and had everything sterilised. The poor children were neverly starved, and in fact they never given a glass of wholesome water with plenty of microbes in it, and they got as fat as possible."

Clark's tables give the average quantity of water required by an adult as follows:—2 quarts for drinking, in addition to about 2 quarts retained in his food; 3 quarts for preparing and cooking his food; 1 gallon for washing dishes and general housework; 2 gallons for house-cleaning; 3 gallons for washing his person; 5 gallons for cleansing the body; 6 gallons as a proportion, assuming a plunge bath is taken once a week; 6 gallons for w.c. Total, 23 gallons being the average amount of water required daily for each individual.

MISUSE AND WASTE.

Consider the theoretical quantity given as too harsh, although it is much less

than the Romans used in ancient times. Professor Riebel informs us that "ancient Rome, with its nine aqueducts, served its people with 300 gallons a day per head, including the supply for the public fountains, baths, circus, and amphitheatre, and for sanitary and trade purposes. A special State department administered the supply, and, as a result of these efforts, classic Rome was far more healthy than the modern city." I think all will agree that this example could not be followed to-day, as the days, as the days, a few waterworks that could stand that sort of thing. It seems to me that a warning to the public is necessary to prevent waste or misuse of such an increasingly valuable commodity as pure water. The tendency of everyone who designs or manufactures water fittings and sanitary appliances is to rely upon existing supplies of water; they should be designed in such a way that the utmost efficiency and economy is obtained from moderate quantities, rather than by the waste of large quantities. An ordinary plunge bath holds from 30 to 70 gallons of water, and if everybody had a bath every morning—using, say, an average of 50 gallons each—there would be very few waterworks in the country that would be able to stand it. What is wanted is a greater use of the portable hip bath, with about 3 gallons of water, or some development of the shower bath by which a person could have a complete bath with a small expenditure of water, and so fulfil the ideal of the sanitarian, that every healthy person should have a head-to-foot bath once a day. A very general idea prevails among water-consumers that waste, although bad for the waterworks, is good for the drains and sewers; but that is not true, because if the waste is due to defective fittings, it goes on in the daytime, plus the consumption, which in itself is, or ought to be, enough for all purposes. During the night, when the leakage is going on as before, and the consumption is dead, the water is so distributed over a large area that it is of no use whatever as a flush to the drains and sewers, but is simply a waste of water which could be more effectively used in a legitimate manner.

There are various causes of the waste of public water. One is a misapprehension—as noted above—that a continual small stream of water along house drains improves the sanitary condition of the house. This is a mistake. A short, sudden rush at intervals has a beneficial effect in flushing drains, but a continual dribble has none. There is no use, therefore, in allowing small streams of water to flow continually down water-closets or other sanitary appliances. Improvements in the form of water-closets and of flushing apparatus, the former have been made quite self-cleaning with a flush of two gallons, or even less, appliances being insisted upon that make it impossible to give a greater flush. However, it must be admitted that by far the greater part of the waste that takes place is due to carelessness in the part of the consumers of water—of carelessness that can only be considered as culpable, if it be borne in mind that wilful waste of water supplied by waterworks is simply stealing. The water is actually public property if the works belong to a corporation or council, as the case may be; and even if they belong to a company, the water is public property in the sense that the price which each individual has to pay to the company must in great part depend on the consumption of the whole, including waste. Although not generally the case, many householders are indifferent to the waste of water. It is, therefore, a matter of indifference to them whether, for example, a tap is running the whole night or not. Where the cost of leathering a tap is charged to the consumer, there are some who consider it is to their advantage to allow the leakage to continue. In the works under my control—although the average consumption is low—we lose every night, between the hours of 12 p.m. and 6 a.m., from 15,000 to 20,000 gallons of water. The major portion of this quantity must be made up, however, from this, a great deal of leakage takes place, simply because it is difficult to appreciate how large a quantity of water is lost on account of an

apparently very small leakage continuing through the whole twenty-four hours. It would astonish most people who see water merely dripping from a tap, or from a leaky pipe, to be told that the loss is likely to be 3 or 4 cubic feet in twenty-four hours, or fully the average consumption of water of one individual. Yet, if a measuring-glass be taken, it will be found that from 2oz. to 3oz. per minute of water may fall merely in the form of drops, and this corresponds to a large consumption in twenty-four hours for one person. It needs but a very small dribble to discharge 20 cubic feet of water in twenty-four hours, or, say, the quantity that ought to be consumed by an average household.

This matter of the great quantity of water that may be lost by a continual leakage was well illustrated by Mr. W. H. Cope, C.E., in a paper of his on the subject of the waste of water. A lead pipe was drilled with various-sized holes, the barr on the inside not being removed. The actual number of gallons per day which passed through each hole under a pressure of 45lb. per square inch was noted, together with the corresponding number of persons that quantity would supply at the rate of 15 gallons a head per day.

| Discharge in gallons per hour. | | At the rate of 15gals. per head per day would supply— |
|--------------------------------|--------------------------------------|---|
| 450.... | ○ ¹ / ₂ | 720 |
| 192.... | ○ ³ / ₈ | 307 |
| 160.... | ○ ¹ / ₄ | 256 |
| 27.... | ○ ¹ / ₁₆ | 43 |
| 15.... | ○ ¹ / ₃₂ | 24 |

Results of experiments on the flow of water through circular holes in 1/2 in. lead pipe under a pressure of 45lb. per square inch, showing number of persons who might be supplied by their discharge through daws of various sizes.

PREVENTION OF MISUSE AND WASTE.

The question of waste-prevention has always been a source of trouble, and one of anxious consideration for the engineer. Burton, in his treatise on water supplies, writes as follows:—

"Of late years large reductions in the consumption of water per head have been made by careful arrangements for saving waste. Waste has been saved in several ways; for example: (1) by the use of district meters, (2) by the use of house meters, and (3) by insistence on the use of house fittings of good quality only, and on their frequent inspection. I may say, concerning the third item, that the difficulty in preventing waste in waterworks has seldom been felt to any great extent in connection with the street mains or the larger appliances belonging directly to the proprietors of the waterworks. These are fixed under the charge of skilled engineers, and are under their supervision afterwards. It thus occurs that leakage is not very likely to occur in them, and that if it does it is soon stopped. In the case of house fittings it is quite different. These are put in by the builder or the householder, who employs whomsoever he likes. It is not in the least to the advantage of the former of these to be sure that no water waste takes place, and it is to the reverse of the interest of the latter to prevent leakage, because he has nothing to pay for leakage, while he has to pay for preventing it. Very stringent regulations have been introduced in most English and many Continental towns for the prevention of waste in houses, and these have been put efficiently in force in a considerable number of cases."

* Paper read at a Western District Meeting of the Institution of Municipal Engineers, held at Climbey, on Thursday, June 20, 1912.

Notwithstanding the severe climatic changes in England, few precautions are taken against the grave inconvenience of waste occasioned by frost. House pipes are often left unprotected, and so placed that a burst will cause considerable damage. Cisterns are frequently situated outside, and when they freeze solid are the cause of serious annoyance. The pipes and fittings in the ground should always be laid a good depth, and all exposed pipes and fittings should be protected with some non-conducting material. I expect the Deacon waste-water meter is familiar to all of you; it is no doubt one of the best, and the discovery of waste, as my meter will control a large part of a district, but there are many authorities who would hesitate to install this system in consequence of its cost and manipulation. It has even been suggested that every house should be supplied by meter just in the same way that it is supplied by gas.

That is an exceedingly expensive way of controlling the supply on a large scale, and leads to the other extreme of undesirable parsimony in the use of water. To install the meter system in my own district would cost £5,000, the cost of maintenance and inspection would necessarily be higher, which would mean raising the price of the water pro rata, as consumption was large or small, to cover the extra cost of metering. There is one matter I should like to refer to, with which I have no patience, and that is the parsimonious spirit of some public water authorities, who begrudge the engineer-in-charge the assistance of inspectors and fitters for the proper, economical, and expeditious control of the works which he has to administer. Quite recently a surveyor informed me that the waste of water in his district was so large as to be quite absurd. It has never been the custom of his authority to leather taps; but some time ago he made an inspection of his district, and with some assistance leathered, or saw to the leathering of, the taps himself. In one month, he tells me, he saved by these means no less than 400,000 gallons. Assuming it cost 6d. per gallon, the saving was as large as the waste of the water, the saving is quite equal to paying the wages of two men permanently employed, apart from the saving to the consumer's fittings, and also the saving of this precious and absolutely necessary fluid. Speaking of the works under my own control, I am pleased to say that it has always been our custom to leather and repair consumers' service taps, etc., and to fix the taps free of charge (excepting the cost of the tap). The result has been highly economical and satisfactory, the average consumption, excepting periods of continued drought, does not exceed 12 gallons a head per day, including that used for trade purposes, and we supply a population of 10,000. Previous to obtaining an additional supply, I am quite sure our system, comparatively speaking, was saved from absolute failure by our methods of checking waste. Our methods have enabled us to keep in touch with, and to gain the confidence of, the consumers; the reporting of leakages is encouraged; and it has had the effect of making each and all of them an inspector, as they are so promptly and promptly attended to, of course there is a row. Notwithstanding the result, there are some. I am sorry to say, who disagree with our methods, but I sincerely hope that wise and experienced counsels will prevail. Under any circumstances, no one can dispute that our system means economy, advantage to the consumer, and a means of preventing waste. It is only fair to state that plunge-baths and water-closets are not in general use, but probably 40 per cent. of the consumers have one or the other, or both, so that our rate of consumption is certainly 40 per cent. below the theoretical quantity required per adult per diem.

Before concluding, I should like to summarise a few things which would certainly have the result of checking waste.

1. Night Inspection.—This need only periodical, but it would be the means of discovering underground leakages, as well as other causes of waste. The method to adopt

would be for the inspector to proceed round the district during the night with a sounding-rod, and to hand over the result of his discoveries to the fitters for further inquiry into the matter the next morning. This would have the effect of finding out willful waste, as well as that due to defective fittings.

2. First class fittings of approved construction should be rigidly insisted upon, as well as the laying and fixing of pipes for protection against frost.

3. The enforcement of two gallon closet flushing-cisterns, and automatic flushing-cisterns of stated capacity for urinals. Great economy in the use of water could be effected if it were possible to provide a satisfactory and water-saving substitute for the plunge-bath.

4. Outside closets could be an approved make of the waste-water type.

5. Public inspection and repair of draw-off apparatus, such as leathering, etc., free of charge.

6. Covered reservoirs for spring water to obviate the waste caused by the necessity of cleansing of algae, or water-weed, which rapidly forms in hot water. (This advice may be somewhat superfluous, as spring-water reservoirs are very rarely left uncovered nowadays.)

7. Plenty of air-valves and sluice-valves to prevent the emptying of long lengths of main when repairing or tapping.

8. Apparatus for tapping mains under pressure, and so save emptying them when doing this work.

9. Pressure-reducing valves in very high districts, wherever possible to fix them.

I should like to say, in conclusion, that one of the objects of this paper is to give food for thought among those who may be personally interested in this subject, whether publicly or privately—especially with regard to its importance. The question of preventing waste as far as possible, without curtailing the legitimate requirements, or causing inconvenience, annoyance, or undue expense to the consumer, would then, I think, be soon effected. Furthermore, as waterworks engineers, I am sure we all agree that the legitimate prevention of waste in our public water supplies is a serious duty, whether from a national or economical point of view.

MUNICIPAL WORKS AT EAST HAM.*

By J. E. W. BIRCH, Engineer and Surveyor.

PUBLIC BUILDINGS.

A site of six acres was purchased in the centre of the borough, in the year 1859, and the following buildings have been erected thereon:—

(a) Town-hall and municipal buildings, costing £46,054 (price per foot cube, 1s. 0½d.), from designs of Mr. Henry Cheers.

(b) Adjacent to the town-hall is the technical college, erected at a cost of £21,676 (price per foot cube, 1s. 2½d.), from the designs of Mr. Henry Cheers.

(c) In connection with this college, there is a well-appointed gymnasium and workshops, erected four years ago at a cost of £2,700 (approximately 5½d. per foot cube), from plans prepared by the late borough engineer (Mr. A. Horsburgh Campbell, M.Inst.C.E.).

(d) Additions have recently been made to the town-hall buildings by the erection of education offices and public health department, mortuary, etc., from designs prepared under the supervision of the late borough engineer, and erected by the Council's own workmen, being completed under the supervision of the author at a cost of £5,600 (price per foot cube 1s. 1d.). The cost of the mortuary buildings was £450.

(e) The central Carnegie library was erected from designs prepared under the supervision of the late borough engineer, and erected by the Council's own workmen under his supervision, at a cost of £9,000 (price per foot cube, 10½d.).

(f) At the rear of the central library there has recently been erected a covered-in public swimming bath. The swimming-pool is

120ft. by 40ft. For a distance of 30ft. from the shallow end, it has a uniform depth of 3ft., the remainder ranging from 3ft. to 6ft. 9in. at the deep end, the deepest portion being 8ft. 6in. over the outlet. The bath proper is constructed of cement concrete retaining walls and floor, the whole being lined with marble terrazzo, and is fitted with the usual accessories of diving-bath, etc. A series of dressing-boxes (76 in all) is ranged along the two sides. There is seating accommodation for 300 persons, formed by concrete tiers, finished off with marble terrazzo. This will be supplemented on gala occasions by a temporary wooden tier at the rear for 150, and will thus together accommodate about 450 persons. There are three shower-baths, two footbaths, also efficient urinal and w.c. accommodation. The apparatus for heating the bath is on the aeration and filtration principle, thus avoiding the emptying and refilling of the bath with water, the same water being used over and over again. The needful supply of steam is obtained from the electric-power station, which also heats the bath, so aiding in the economy of working. A small laundry is provided to deal with the cleansing of towels, etc. The cost of this bath is £8,900 (price per foot cube, 6½d.), and the work has been executed by the council's workmen under the supervision of the author, from designs prepared under the supervision of the late borough engineer.

(g) Plans for a further extension to this bath, comprising slipper-baths and vapour-baths, have been approved, the plans for this work having been prepared under the supervision of the author; also similar plans for a new fire-station with firemen's dwellings.

On this same site there are erected electric-power station, tramway-sheds and offices, from designs prepared under the supervision of the late borough engineer, and executed by the council's workmen under his supervision, at a cost of about £26,021 (approximately, 5½d. per foot cube). The Public Libraries Act is adopted, and by a local Act the corporation is empowered to raise a rate of 1d. in the £ for library purposes. In addition to the central library, the council has three branch libraries. The council has purchased 15 acres of land for the erection of artisans' dwellings, and there are now 66 double tenements in Savage-gardens, and 40 double tenements in Brookside Avenue. These are let at 6s. 4d. downwards and 7s. upwards, the accommodation being divided into sitting-room or parlour, two bedrooms, living-room, and scullery, with bath and w.c. for each tenement. The present fire-station is situated in Wakefield-street, and is well-equipped for an old station. In addition to the main station, there is a branch night-and-day station at Manor Park. The present strength of the brigade is—one superintendent, one engineer, nine firemen, two coachmen, total 14 men, and four horses (hired). There is an electric fire-alarm system throughout the district. The present number of street-alarm posts is 16. There are also 15 call-bells to firemen's and turncocks' houses in close proximity to the station. The brigade is as follows:—(One steam fire-engine, one manual fire-engine, one horse-drawn escape and hose tender, two hand-drawn escapes, four jumping-sheets, six hand-pumps and hose, 3,500ft. of canvas hose, one smoke helmet, eight scaling ladders. Of parks and pleasure-grounds there are the central Park, with an area of about 25 acres; Plushie Park, with an area of 18 acres; Beckton Park, with an area of 13 acres; Wanstead Flats, with an area of about 96 acres in so far as within the borough, are situated in the northern portion of the borough, and at the southern extremity of Epping Forest. They are vested in the City of London Corporation, and are under the control by arrangement. North Woodwich Gardens have an area of about 8½ acres. Barkings-road, Greatfield Estate, Little Ilford, and Vicarage lane Grounds (a total area of about 26 acres) are laid out as playing-fields for children. The foregoing parks and playing fields provide a total area of 186½ acres of open space within the borough, to a population of, approximately,

* From a paper read, June 15, at a meeting of the Institution of Municipal and County Engineers.

110,000 sq. yds., and an acreage of 3,326. In 1902 the sewage was constructed by direct labour, at a cost of £1,200, an apparatus consisting of a tank in the Central Park. The size of the swimming pond is 90ft. by 30ft., and at the deep end has a depth of 6ft. 6in., and at the shallow end 2ft. 6in. It is constructed with cement concrete retaining walls and floor, the whole being lined with terrazzo. In the year 1900, 17 acres of land were purchased, and temporary buildings erected as hospitals. In 1906 the late borough engineer was instructed to prepare a scheme for the provision of permanent buildings. This complete scheme provided for 100 beds, at a cost of £48,000, range 1 in a series of separate pavilions. The first of these pavilions was erected at a cost of £140 per bed, or 54d. per foot cube, the accommodation being for 26 beds. The laundry and prior's lodge were built at the same time. In 1908 a further block of two stories was erected, the accommodation on ground floor being for 20 beds, the upper floor being used for nurses' sleeping quarters, etc., the cost being £4,500 (approximately 64d. per foot cube). Also an observation block, built on the cubicle system, containing 12 beds, with glass partitions dividing the beds, the cost being £1,680, or £140 per bed, or 8d. per foot cube. There are 66 miles of public highways within the borough, 6½ miles being county main roads. These latter are maintained by the corporation under agreement with the County Council. On all the main roads there is a very heavy traffic. Especially is this the case in Romford road, it being the main thoroughfare between London and Colchester. The scavenging and maintenance is carried out by direct labour, the horse haulage being carried out by contract. The wage of roadmen is 30s. per week for forty-eight hours. The corporation owns 32 water vans, the haulage of these being carried out by contract. The number of metered high standing water closets is 12, the charge for water being 6d. per thousand gallons. The water is obtained from the Metropolitan Water Board. For the purposes of scavenging and road watering, the borough is divided into two districts, each being in charge of a road foreman (wage, 50s. per week). The cartage of road-sweepings is carried out by contract, and costs, approximately, £1,550 per annum. All streets are 40ft. wide except the main roads, which are from 50 to 60ft. wide. In each of the main roads there is a line of tram-track; the maintenance of this, including 18in. on each side of the outer rails, is carried out by the borough engineer's department on the requisition of the tramways company, and at the cost of the council's undertaking. Within the borough and two miles of wood-paved roads, one mile of granite-paved roads, 54 miles of granite-macadam roads, 2½ miles of tar-macadam roads, 55 miles of flint roads. The attention of the Institution is called to the paving of the Barking road with sectional hard-wood blocks, 3½ in. depth, laid from two to three years previous to the cost of the work, being particularly in relation to the tramway track, and the side margins. The total area of paving so laid is about 25,600 square yards of roadway and tramway. There is also a short piece of bituminous-grouted macadam roadway, which cost about 3s. 5d. per square yard to lay. Roadmen has also been laid at a cost of 3s. 4d. per square yard; square yards; these prices include scarifying, laying 2in. of broken granite and grouting with binder. All the flint roads are water-bound. "Glutrin" has been used in formation and repairing side roads, this material being used in conjunction with bit ballast.

There are 166 lime and chalk rubbish, the cost of working out at a cost of 3s. 4d. per square yard, inclusive. During the past 10 years about 21 miles of private streets have been made up by direct labour under the 15th section of the Public Health Act, the average cost being 8s. 4½d. per foot of frontage. The carriageways are finished off with Kentish Blue, and the footpaths in gravelled, laid with broken flint. The cost of the work is taken up when the street is laid out, and at the time of making up. The granite channel is provided and laid on Portland cement

BOROUGH OF EAST HAM.

TABLE OF ANALYSES OF SEWAGE EFFLUENTS, ETC.

These figures refer to grains per gallon.

| Number | Date. | Source | Colour. | Odour. | Suspended matter. | Degree of oxidation. | Nitrogen in nitrates and nitrites. | Free ammonia. | Organic ammonia. | Oxygen sorbed in 3 hours. | Impurity here. | Degree of purification. |
|--------|----------|--------------------------|----------------------|------------|---------------------|----------------------|------------------------------------|---------------|------------------|---------------------------|----------------|-------------------------|
| 1 | Sept. 13 | Crude sewage | Brown | Of sewage | 41.3 | Nil | Nil | 7.5 | 1.0 | 7.4 | p.c. | p.c. |
| 2 | " 13 | Tank effluent | Cloudy | Urinous | 5.1 | 7.5 | Trace | 3.7 | 0.40 | 2.2 | 30 | 70 |
| 3 | " 13 | Filter | Pale yellowish | Earthy | 1.4 | 10 ¹ | 1.1 | 1.8 | 0.09 | 1.0 | 11 | 86 |
| 4 | " 13 | Humus and Ident Standard | Pale yellowish Clear | Earthy Nil | 1.2 10 ¹ | 10 ¹ | 1.4 | 1.2 | 0.05 | 0.8 | 8 | 92 |
| | | | | | | 10 ¹ | As high as possible | — | 0.10 | 1.00 | | |

The above samples consisted of definite quantities taken every half-hour, between 9 a.m. and 6 p.m. inclusive, which, at the end of the day's working, were thoroughly mixed. Average samples were then taken and analysed.

Remarks by Engineer.—(1) A domestic sewage, moderately dense. (2) Putrefies after three days. (3) No putrefaction, but a good deal of mineral deposit from filter. (4) Final effluent decidedly clearer than No. 3; absolutely non-putrescent. (5) The effluent is the particles of clay from a washbasin basin.

Signed E. WATSON, Works Chemist.

A. H. CAMPBELL, M.Inst.C.E., Borough Engineer.

concrete, and included in the cost of making up.

SEWERAGE AND SEWAGE DISPOSAL.

The drainage of the district is partly on the "separate" system, the surface-water flowing to the water-courses, and the sewage to the council's own works and pumping station. The following particulars are kindly supplied by Mr. A. Horsburgh Campbell, M.Inst.C.E., the engineer responsible for the sewage works:—

East Ham Sewage and Refuse Disposal Works. The sewage-disposal works were originally provided for a population of about 20,000 people, when first laid down upon the designs of Mr. Charles Jones, M.Inst.C.E., and Mr. W. H. Savage, M.Inst.C.E., the first surveyor of the district. They were opened in 1886, and had to do duty in their original condition until 1902. At this time the population had grown to nearly 100,000 persons, and the demands were seriously disproportionate to the means available. After consideration was decided, upon the advice of the late borough engineer, to proceed with the adaptation and extension of the then existing works and pumping plant, so as to bring these original works up-to-date and to make them available for a population of at least 150,000 persons. To this end the enlarged pumping station was built, new pumping plant provided, a refuse destructor for the supply of steam introduced, precipitation tanks enlarged, three acres of bacterial filters provided, the latest addition being a humus basin or tank (one acre in extent) for the final purification of the filtered liquid. These works (involving an expenditure of £44,000) were carried out by direct labour, as regards the filters and humus basin, by distress labour. Certain features in the arrangement and operation of these works are worthy of notice—viz.: (1) The self-contained nature of design and operation, that is to say, a perfect cycle of operations is realised, in that the power needed to pump the sewage and to do the other incidental duties of purification is provided by the crude refuse of the town, burned in the destructor, the resultant clinker being used for the subsequent purification of the effluent. (2) Another feature is the great extent of natural aeration of the sewage at various stages of purification by extended weirs, and the results obtained are attributable very largely to this free exposure of the liquid to the natural agency of sun, light, and air. These results in point of low capital and working cost, and the results obtained, amply justify the wisdom of the council's decision in utilising their own works and in retaining the control of this important adjunct of local sanitary administration. On arrival at the works the sewage passes through a screening chamber, equipped with post-rakes, by press, etc. On each main sewer there is a manhole containing a fixed screen, 8ft. by 6ft., with vertical bars ½ in. apart. These screens are cleaned by means of travelling rakes, which lift the screenings to

a trough above ground level. The rakes are cleaned automatically. The power for driving same is supplied by means of a 3H.P. vertical engine, connected by shafting from the engine-house. The sewage next flows to a pump-well beneath the engine-house floor, from which it is pumped into precipitation tanks. The pumping plant consists of crude sewage consists of two direct-coupled 25in. twin centrifugal pumps, each capable of delivering 20,000 gallons per day, driven by high-speed (460 revolutions per minute) 165B.H.P. forced lubricating condensing engines, steam being supplied at a pressure of 150lb. per square inch, and one 12in. centrifugal pump gear driven by 45B.H.P. motor, capable of delivering 6,000 gallons per day. A 126-kilowatt electric generating set, working at 230 volts, is installed for the purpose of providing electricity to light the works, to pump the tank effluent on to percolating filters, and also to provide energy for driving the 12in. centrifugal pump in engine-house. The total height the sewage is lifted from the normal level of the pump well into the tanks is 29ft. As it flows into the tanks the sewage is treated with lime, nine grains of which is applied to each gallon of sewage. There are two continuous-flow precipitation-tanks, 155ft. by 24ft. 6in. by 7ft. average depth below weirs. Only one tank is in use at a time during dry weather. Each tank is cleaned out once weekly. The effluent from these tanks is treated with ferric sulphate in liquid form, to the amount of 4.7 grains per gallon of sewage. It then flows into one of the three quiescent tanks, each 200ft. by 50ft. by 7ft. average depth, and is allowed to rest in same for two to three hours. One tank is cleaned out each week. Provision is made for gravitating the tank effluent back to the pump well, and retreating it if found necessary. The final tank effluent is pumped by an electrically driven centrifugal pump, capable of delivering 6,000 gallons per day, into a cast-iron pipe, 15in. in diameter, reducing to 12in. and 9in. diameter, which encircle the filter-beds. From these pipes, distributing pipes, 4in. and 3in. in diameter, are laid in lines at intervals of 8ft. across the bed, and "fixed sprays" are fitted on these pipes at 9ft. distances apart. The sprays are of two types, one made by Messrs. Jones and Attwood, of Stourbridge, and the other made by Messrs. Stone and Co., of Depford, and patented by Mr. Carpenter, the engineer and manager of the works. The filters are composed of refuse clinker, or clinker in broken size, the range of 2in. to ¾ in., one filter being 6ft. deep and one 4ft. 9in. deep. The dry weather sewage is applied at the rate of 162gal. per cubic yard per day. A contact bed, one acre in extent, 3ft. deep, the medium being broken clinker, is provided to purify the supernatant water drawn off from the quiescent tanks. The bed is only filled in one day, the purpose preventing the use of this bed in three cycles of eight hours each per day. The effluent from these beds flows through a humus basin—one acre in area. It enters at one corner

and flows by a circuitous route over four weirs, to a pipe discharging into the main effluent drain. The object of the humus basin is to allow any suspended matter in the filtered effluent to settle, and at the same time to aerate same as much as possible. The main effluent drain, 4ft. in diameter, discharges into the tidal River Roding, at low-water level. The sludge, about 1,050 tons weekly, from the precipitation tanks is swept out by means of squeegees through 12in. valves into a sludge conduit, and thence to a pump-well, whence it is pumped by two horizontal direct-acting pumps into a timber trough, along which it flows at a gradient of 1 in 90 to a lagoon, formed with banks of house refuse on the marsh.

Refuse Destructor.—The refuse destructor is the "Simplex" front-feed destructor type. Forced draught (hot air) is supplied from two regenerators, each of 264 tubes, and 1,100 square feet of heating surface. The grate area of each unit is 89 square feet. Attached to one unit is a Lancashire boiler, 30ft. long and 4ft. in diameter, with 1,100 square feet of heating surface. To the second unit is attached a Babcock and Wilcox water-tube boiler, 2,255 square feet of heating surface. An auxiliary grate is fitted to the Babcock and Wilcox boiler, thus enabling coal to be burned if the refuse is very wet or too poor in quality to generate the steam required for the works. The units are worked alternately, one working whilst the other is being cleaned, thus giving a continuous working of 168 hours per week. The weight of refuse daily destroyed is from 50 to 60 tons, the average weight of the refuse in summer being 6cwt. per cube yard, and in winter 9cwt. per cube yard. The present chimney-shaft is 100ft. high, and a new one is being erected 8ft. internal diameter and 150ft. high.

CAPITAL COST OF WORKS.

| | |
|--|---------|
| Tanks and original buildings | £21,000 |
| Alterations to same | 5,000 |
| Destructor, two units of three cells each, boiler plant, approach roads, and foundation work | 12,500 |
| Outfall to River Roding | 5,000 |
| Filters and screens complete | 7,000 |
| New pumping plant, deep well, screening gear, &c. | 12,000 |
| Humus basin and contact bed | 4,000 |
| Annual working cost £6,575, made up as follows:— | |

Whereof for

| Totals. | Destruc- tor. | Pump- ing. | Sewage Purifi- cation. |
|--|------------------|---------------|------------------------------|
| Wages | £1,707 | £1,002 | £1,141 |
| Carriage | 300 | 250 | 50 |
| Buildings & plant | | | |
| Repairs and re- newals | 400 | 150 | 150 |
| Coal and coke | 400 | — | 300 |
| Sewage precipi- tants | 1,250 | — | 1,250 |
| Stores | 300 | 60 | 150 |
| Rates, taxes, and insurance | 230 | 100 | 50 |
| Roads & fencing | 125 | 60 | 50 |
| Contingencies | 330 | 100 | 150 |
| £6,575 | £2,227 | £1,707 | £3,041 |
| Equivalent to rate burden per £ of rateable value, approx. | 3.42d. | 1.09d. | 0.84d. 1.43d. |

Lighting.—The borough is lit both by gas and electricity. The main thoroughfares are lit with arc-lamps, and the side streets by electric glow-lamps and with incandescent gas-lamps. The gas-lamps are fitted with incandescent mantles, burning 21, 31, 4, and 4ft. per hour respectively. The current is supplied from the council's electric generating station. Lighting, extinguishing, cleaning, repairs, and maintenance both of gas and electric lamps are undertaken by the council's workmen. The wages of lamp-lighters are 26s. per week and uniform.

Dust Collection.—Is carried out under the officials. The corporation owns the dust-vans, and employs the dustmen direct, but the horse and driver are contracted for. Collection is made once a week, the whole being carried to the refuse destructor. The number of men regularly employed in the engineer's department is about 350, this number including those engaged on scavenging, sewer work, street works, parks, sewage works, and workshops. Each man is allowed Bank

Holidays, with pay, and one day annual holiday for each two months' completed service, such holiday not to exceed one week. After 12 months' service each workman is allowed two weeks' full and two weeks' half-pay in any one 12 months. The average working hours are 48 per week, with a minimum wage of 30s. per week for a man 21 years of age.

The author desires to acknowledge the very able and willing assistance rendered by his deputy, Mr. Baker; the chief assistant, Mr. Brook; and the engineering assistant, Mr. Bridgewater; together with the general staff of the department in the carrying out of the various undertakings of the corporation.

THE DISCUSSION.

Mr. Willis (Chiswick) proposed a vote of thanks to the author of the paper, and congratulated the authorities of an extra-metropolitan borough of such rapid expansion with the lowliness of the general district rate, 3s. 8d., which, considering the existing conditions, should not be considered as anything but admirable, and that by a special Act they could exact a 11d. library rate, he would like to know if they really wanted the amount, also the cost of administration for fire protection of the district, and was not mechanical better than horse traction? Then, unless there was something special not mentioned in the paper, the cost of open swimming-bathing appeared high; and what was the flow of sewage per head per day? (Ans.: 26 to 27 gallons.)

Mr. Reginald Brown (Southall Norwood), seconding the vote of thanks, asked what means were adopted to communicate with the members of the fire-brigade. This speaker did not agree with the previous speaker that the cost of the open-air bath was excessive, but he would like to know if any action had been taken to provide better inter-communication across the river than the existing ferry. Such means were badly needed by the growing population. (Ans.: It had been considered, but no action taken.)

Mr. Bradley (Tonbridge) pointed out that if the pressure in the mains was sufficient, there might be less need of urgency for the fire service. In reply, it was stated that the pressure of the hydrants was sufficient for all ordinary demands (at fires). He would like to know how the water in the open-air bath was changed.

Mr. James (Grays) asked for various details of costs.

Mr. Essex (Leyton) thought for fire-prevention water motor was better than horse traction. He asked if the back roofs and yards drained into the surface-water sewers. (Ans.: No). Because, if so, slops, etc., which ought to go into the other sewer, went wrong. (In reply, it was stated that the separate system was completed only for side-streets, and not in the main streets, so that it could not be logically held that the separate system prevailed.)

Mr. Cubitt pointed out that it was necessary to look well ahead in fire prevention. Under the L.C.C. all big buildings were subdivided, and this ought to be the case everywhere.

Mr. Jones (Ealing) referred to his connection thirty years ago, with Mr. Savage, in the design of the sewage works. These works are in use still, gave satisfactory results for sixteen years, and then had to be extended because of the huge increase in population.

The President put the vote—which was carried with great applause—when Mr. Birch thanked the members for the vote of appreciation, and gave the sewers to various questions, most of which are indicated above. Of the others—as to the cost of the open-air bath, it was contemplated at one time to put on a roof, and provision was made for this object. As regards fire-prevention, the horses were housed close by, and electric call-bells installed so that the men of the brigade could be summoned at the first. The first between a sign of danger and the start of the brigade was only two minutes.

Then the members visited the hospital, sewage works, and open-air swimming-baths, returning to the town-hall to tea, kindly provided by Mr. Birch.

THE LONDON COUNTY COUNCIL.

The London County Council met again on Tuesday, after the Whitsonide recess, when a heavy agenda was dealt with. In consequence of the complaints made as to the slow rate at which the work on the County Hall was progressing, the Establishment Committee have considered what can be done to expedite the completion of the building. They report that the two governing factors at the present time are the dates of the delivery of drawings of the superstructure by the selected architect, Mr. Ralph Knott, and the date of completion of the sub-structure of the central section. On the assumption that Mr. Knott will deliver the drawings of the central section at the beginning of July, and those of the southern and northern sections at the end of August, it is estimated that their examination by the official architect, Mr. W. E. Riley, the preparation of the quantities and the estimate, the invitation to tender, and the execution of the necessary contracts will take, approximately, until the date of the completion of the central section of the sub-structure, namely, April 12, 1913. Should it be found that the period required for the examination of drawings, the taking out of quantities, and the like, can be shortened, special steps can be taken to complete the sub-structure at an earlier date. As to the erection of the superstructure, the Committee suggested that alternative tenders should be invited, say for three or two years, with a bonus for each week saved on the contract time. If the carrying out of the scheme be expedited in the manner suggested, the Committee would without hope that the revised dates which they now submitted might be improved upon. On present calculations, the sections should be completed by the following dates:—Central section, April 12, 1916; southern section, March 15, 1916; and northern section, June 12, 1915. The Committee also corrected the supposition that some restriction had been imposed on the amount of money required for the new County Hall. On the contrary, they reported money had been voted as quickly as possible in order that the work may be pushed on with all despatch.

On the recommendation of the General Purposes Committee, the resignation of Sir Maurice Fitzmaurice, C.M.G., of the position of chief engineer of the Council and County surveyor for London, was accepted as from the end of the present year. It was reported that the resignation was proffered in order that Sir Maurice might commence private practice. He has held the position of chief engineer since January 1, 1902, and has been responsible for, among other work, the construction of the Rotherhithe and Greenwich tunnels, and the embankment at the new County Hall, and extension works of main sewerage, including the intercepting sewer now being carried from the west to the east of the Metropolis. The chairman, Mr. Cyril Jackson, and Sir John Benn, spoke in high terms of appreciation of the services rendered to the Council and to London by Sir Maurice.

The estimates of the Housing of the Working Classes Committee amounted to £222,000 on capital account, but £29,000 of this will be met out of the Acquisition of Lands Fund. For the clearance of insanitary areas, £100,000 has been included, most of which will be incurred on the Tahard-street scheme. The Maintenance Estimates showed that the net rent receivable in respect of the Council's property, including the dock, was £294,535, as compared with the estimate of £195,083 for 1911-12. After paying all charges on capital there is an estimated surplus of £4,463. The Committee also submitted their accounts for the past year, from which it appeared that, considering the whole of the dwellings erected by the Council, there was a surplus for the year of £1,000,000 of £8,332, as compared with £4,428 in the previous year. The total financial results on all dwellings and estates from the date of the opening of the first block in April, 1894, to March, 1912, was that £115,131 had been temporarily defrayed out of the rates, and £1,054 contributed from the tramways

CURRENTE CALAMO.

When lowest tenders lead to litigation whose fault is it? We are not going to attempt to answer the question. Readers must do that for themselves, after reading the report of Munn v. the Lambeth Borough Council in our "Legal Intelligence" on another page. We give a very full report because, on this page, in our issues of October 6 and 13 last year, we had occasion to comment on the extraordinary difference between the amounts of the tenders submitted for this job. There were no less than forty of them, and the figures ranged from £616 12s. 6d. down to £105 19s. 6d., the latter amount being that of the tender of the plaintiff, which was accepted. There was a definite specification as to the paint to be used, and the Council had its own clerk of works to see the work was done properly. The differences seemed so extraordinary that we invited information from the Town Clerk on the one hand and from the senders of the highest and lowest tenders on the other as to any possible reasons for the wide divergence.

Of those who tendered, Mr. Munn was the only one who replied, and we gave the gist of his letter on p. 507 in our issue of October 13. We agreed entirely with the last sentence in his letter, which we quoted, and we pointed out that while such tendering remained unexplained had results to the public must follow, and that therefore it was the duty of all concerned to watch the matter very carefully. It will be noted in the report that Mr. Munn has tendered the Lambeth Borough Council for £67 15s. 4d. for extra wages paid, and damages sustained by him owing to delay and other small items. As regards the delay, the jury gave Mr. Munn a verdict, but confessed inability to say what was due to him on that account. This, the judge said, was a verdict for the plaintiff on that one point, and he referred the decision of the amount to the Registrar, on a *quantum meruit*.

Very frankly, we do not see that much good is likely to come of the "Experimental Town-Planning School," which is to be held, so we are informed, at the Hampstead Garden Suburb during the first fortnight in August, at which "professional men will, without interference with their ordinary work, attend short courses of lectures and practical demonstrations of town planning." Is this part of the "influential effort" we are told by some of the daily papers is now being given to the "scheme" for establishing a Chair of Town Planning at the University of London, or is it really expected that architects will have a few days out about the next Bank Holiday time at "Appy Ampstead?"

The French Chancellor of the Exchequer is proposing a prohibitive and proper tax on the poster advertisements which disfigure the landscape along the railway lines. At present these atrocities only pay a small fixed tax of from one to two francs each; but in future, if M. Klotz's Bill passes, £15 per square yard of advertisement will be levied annually. Nor is this all. The land-tax is to be increased to the owner by the amount of profit he makes on the space let. We trust some future Chancellor of the Exchequer will follow suit here, and tax

hoardings in the great thoroughfares as well. Things are not so bad, perhaps, with us as in France or America; but the evil is growing, and it is time something was done to check it.

As far as London is concerned the London County Council is taking action under the Advertisements Regulations Act of 1907, and its Local Government Committee have scheduled, after inspection, 108 public gardens in various parts of London, all the parks and open spaces, and most of the squares and playgrounds under the management of the Council, the Royal parks, cemeteries, churchyards, and burial grounds open to the public, for the purpose of applying a series of new by-laws. One of these provides that no advertisement or hoarding shall be erected within forty yards from any of these places so that it can be seen by any person in them. The object of this new by-law is that the views from the public open spaces shall not be spoiled by advertisements. It is also provided that no illuminated or other advertisement erected within sight of these pleasure grounds shall be exhibited more than 30ft. from the ground. Foremost in the places where advertisements and hoardings are to be barred are Trafalgar Square and Parliament-square. The second schedule deals with views from various parks, and is designed to prohibit large advertisements "exhibited more or less near to the point of view." We trust the new regulations will be rigidly applied.

London next, please! They say in Paris every man of mark is as afraid of having his statue set up as a good personal friend of George the Third was of the "Sir" to his name, when his Majesty used laughingly threaten to knight him. Anyhow, Voltaire has four, Diderot two, Alfred de Musset three, Joan of Arc four, and Lamartine two. The Prefecture of Paris has just had a return prepared with a view to the elimination of redundant effigies. Thirty-three subscription lists recently opened for as many more statues in Paris to the illustrious dead seem to have rather frightened the Prefecture. We have very few duplicates in London, but we have some statues which, on all reasonable principles, ought to be recast or re-chiselled from time to time, to suit popular taste, just as celebrities were remoulded in Mrs. Jarley's waxworks exhibition.

In Paris the vicissitudes of some of the statues have been many. We know for certain that three different statues of Napoleon have adorned the Vendôme column. The first was the work of the sculptor Chaudet, and represented Napoleon as a Roman Emperor. This statue made way for one executed by Seurre, representing the Little Corporal in uniform, with the familiar three-cornered hat. Seurre's statue was thrown into the Seine by the Revolutionists in 1871, and was afterwards replaced by the present statue, in which Napoleon appears once more in the garb of a Cæsar. Although thrown into the Seine, Seurre's statue was recovered, and has lately been placed in the Invalides. M. Robert Henard, the historian, however, declares that the statue is not quite the same as the original. It seems that when fished out of the bed of the river it was so much injured that a new head was necessary. The little three-cornered hat is, therefore, modern and not the handiwork of Seurre.

On some of the Northern fair grounds the stale delights of zigzag railways, great wheels, and the like, are giving place to "The House of Nonsense," which seems to embody a combination of more or less useful object-lessons illustrative of the enormities of the jerry-builder and the fads of the "garden-city" architect. According to a correspondent of the *Manchester Guardian*, "The House of Nonsense" is a square-built house with doors and windows, quite ordinary outside, but most extraordinary inside. As soon as you enter you find that everything is topsy-turvy. One flight of stairs is moving up slowly, half if another is coming down and the other half going up, while the balusters are leaping about madly from side to side. Walking on what seems to be a Brussels carpet, the floor suddenly gives way beneath your feet, but you are only dropped a few inches. You step on a harmless-looking board, which begins to fly backwards and forwards; you jump off this upon another, which rotates swiftly; then you have to cross an apparently bottomless tank (really only an inch deep) on a tightrope; landed safely on the other side, you find that the only way down to terra firma is by a chute, which fires you out on a mat on the hard floor beyond. Somewhat perturbed by these and other adventures, you sit down on an apparently comfortable seat, which at once drops down and deposits you on the boards. You try a second seat, only to be hurled violently in the air. Seeking the exit, you become involved in a wooden maze, the only way out being into a ridiculous monkey-cage. Retracing your steps, a sudden gust of artificial wind blows off your hat. Tired and thirsty, you espy an American soda-fountain and order a cool drink, but receive instead an electric shock. Then they let you out.

In the competition for designs for the new University at Calgary, plans have been received from all parts of Canada and the United States. It is expected that the awards will be announced shortly. The preliminary expenditure will be 250,000dol.

Under the will of the late Sir Julius Wernher, the National Gallery receives its first example of a picture by Watteau, it measures 20in. by 25in., and is known as "La Gaze d'Amour." It was engraved by L. P. de Bas, and was exhibited at the Palais Bourbon in 1874.

Mr. Rogers, Federal Minister of the Interior, announced that at a banquet on Monday night the Dominion Government had acquired 47 acres on the Harbour of Fort William, Saskatchewan, for the purpose of building Government elevators. They were inviting tenders immediately for elevators to take 3,000,000 bushels, and would establish later elevators at Vancouver and Hudson Bay.

The town council of Wolverhampton have purchased for £6,000 the site of the Old Deanery. A letter from Sir Richard Paget was read, in which he said the Church of St. Peter's and the Old Deanery were practically the only architectural evidence of the history of the town, which dates back nearly 1,000 years. Many old buildings had been demolished, and he thought that Wolverhampton, except for the Church and the Old Deanery, might be an ancient town of fifty years' growth. Upon no conditions should the town permit the demolition of one of its last remaining buildings. The Deanery will be utilised as a public museum.

The State of New South Wales is creating a grand irrigation scheme at Burrumbidgee, whereby 350,000 acres of fertile soil in the Burrumbidgee Valley will be thrown open for intensive cultivation. The waters to be conserved fall over 3,000 square miles of mountain and plateau, flow down into the channel of the Burrumbidgee River, which will be dammed so as to throw back the waters of the Burrumbidgee basin for forty-one miles. This great dam will be 240ft. high, and 1,800 wide at its base, and will retain 209,500,000 gal. of water. A number of irrigation farms in the area have already been made available for settlers.

R.I.B.A. THE SOANE MEDALLION.

The attention of intending competitors for the Soane Medallion is called to the following modifications in the conditions: 1. No restriction is placed on the size of the strainers, but they should be of reasonable size. 2. The plans, sections, and elevations to be drawn to 1/16th scale. 3. A section through the front buildings, up to and including the roof levels of the line, to be drawn to a scale of 8 feet to an inch. 4. Plans of the upper floors and basement need not be drawn.

THE R.I.B.A. ELECTIONS.

The following are the reports of the scrutineers, showing the votes given in the ensuing session of the Royal Institute of British Architects. We published the full list of the results last week, p. 878.

The elections of the President, Hon. Secretary, the nine representatives of allied societies, and the representative of the Architectural Association, were unopposed.

Vice-Presidents.—Elected: Ernest Newton, A.R.A., 635 votes; A. W. S. Cross, 586; E. Guy Dawber, 576; George Hubbard, 558.—Not Elected: John W. Simpson, 520 votes; Walter Cave, 406.

Members of Council.—Elected: H. V. Lanchester, 780 votes; J. S. Gibson, 755; W. Flockhart, 719; E. A. Rickards, 698; Max Clarke, 694; W. A. Forsyth, 668; T. E. Cooper, 651; W. J. Tapper, 614; Wm. Woodward, 614; Wm. Dunn, 614; C. Stanley Peach, 629; Edward Wimperis, 604; C. B. Quennell, 602; Sydney Perks, 575; W. Henry White, 558; F. R. Farrow, 540; A. W. Brown, 520; S. Perkins-Pick, 509.—Not Elected: W. R. Lethaby, 497 votes; Edwin T. Hall, 394; W. Curtis Green, 362; Maurice B. Adams, 328; Arthur Keen, 320; Edward Warren, 316; Sir A. Brunell Thomas, 310; C. C. Brewer, 291; G. H. Fellowes Pryne, 280; P. S. Wainman, 270; H. B. Burke Downing, 277; Edgar Wood, 252; H. Wigglesworth, 221; Banister F. Fletcher, 184; W. H. Atkins-Bryer, 183; J. B. Mitchell-Withers, 101; Robert Evans, 81.

Associate Members of Council.—Elected: A. Needham Wilson, 673 votes; S. Warwick, 642; Alan E. Munby, 549; Edwin Gunn, 536; K. Gamwell, 499; J. K. Greenslade, 411.—Not Elected: R. Atkinson, 286 votes; Digby L. Solomon, 254; H. Inigo Triggs, 262; W. H. Ward, 234; Stanley Ham, 268; C. Wontner Smith, 214; G. L. Elkington, 156; F. R. Hioris, 106.

For the election of Fellows, 1,004 papers were returned, of which 21 were invalid; and for Associates 1,001, 35 being invalid. Less interest appears to have been taken in the election of members of standing committees (which the demand precludes us from publishing in detail); 911 recorded votes for the Art Committee, 901 for the Practice Committee, 886 for the Literature Committee, and 884 for the Science.

THE OPERATIONS OF THE NATIONAL TRUST.

Princess Louise Duchess of Argyll, the President of the National Trust, will take the chair at the annual meeting in Crosby Hall on July 11. The Earl of Plymouth will be among the speakers. At the present time the National Trust is attempting to secure many beauty spots in this country for the use of the public. The effort to preserve Colley Hill, near Reigate, has been successful so far that only £1,000 is now required.

An opportunity has also been offered to the Trust to acquire the site of the Roman Fort on Berran's Field, the level meadow at the head of Windermere, within three quarters of a mile of the centre of Ambleside. The Fort formed part of a system of roads and blockhouses by which the Romans controlled the Lake Country. Berran's Field has lately been sold as a building site. The owner of the property has agreed to suspend operations, and has given to the Trust an option of purchase for six months of twenty acres for £4,000, of which sum £3,000 remains to

be raised if this item of Lakeland scenery is to be secured.

The National Trust is also supporting an effort which is being made to preserve a portion of Finchampstead Ridges, which forms part of the Pearwood Estate, near Wellington College. The road over the Ridges commands one of the finest landscapes in this part of England, overlooking Berkshire, Hampshire, and Surrey. An opportunity of acquiring further land at Mariner's Hill, near Westerham, Kent, has presented itself, the owner having given to the Trust the option of purchasing fourteen acres for £1,500. Towards this sum about £1,000 has already been secured.

Through the generosity of the Fishmongers' Company and a few private individuals, a tract of land on the north coast of Norfolk, known as Blakeney Point, comprising nearly 1,000 acres, has been purchased from the owner and will soon be vested in the Trust.

OBITUARY.

Mr. Henry Joseph Williams, architect, surveyor, and valuer, Bristol, died on the 7th inst. at Brislington, near that city, aged 70 years. His works include many branches of Lloyds Bank in the West of England, and the Law Union and Rock Insurance Offices in Bristol.

Mr. J. Wright Clarke, who was well-known as an author of textbooks on plumbing and sanitary science, and a popular and sound lecturer on these subjects, died on Friday last at his residence in New Wandsworth. For 25 years Mr. Wright Clarke was in connection with Plumbing at the Polytechnic in Regent-street.

A housing scheme to be carried out in the Roper district at Coventry on co-partnership lines, at an estimated cost of £60,000.

Lord Strathcona, High Commissioner for Canada, has been notified by the Canadian Under-Secretary of State of a remission of duty on Portland cement and hydraulic or water lime from June 12 to October 31.

Mr. Gomer Henry, surveyor to the Carmarthen Rural District Council, has been appointed surveyor for the eastern division of Carmarthenshire, at a salary of £200 per annum, with £50 additional for travelling expenses.

At the last meeting of the A.A. Excursion Committee it was decided to visit Shropshire this summer, and that the headquarters should be in Shrewsbury. It was also decided to alter the date of the excursion to August 12-17.

The cottage baths recently provided by the Corporation of Birmingham have proved so great a success that it has been decided to extend the system. Plans for fresh sets of baths of this class to be constructed in Dartmouth-street and in Coventry-street were adopted on Monday.

The Hertfordshire wing of the Sea Training Homes for poor boys at Liscard was opened by the Marchioness of Salisbury on the 12th inst. The contractor for the work was Mr. T. G. Husley of Selby-street, Liscard. The wing is equipped and self-contained building erected on similar lines to the original block. It contains classrooms, a recreation-room, and a dormitory with accommodation for 126 boys.

At Slough, on Wednesday week, the Bishop of Oxford dedicated the enlarged nave of the parish church, after having dedicated the new organ the previous evening. Thirty-six years ago the chancel and transepts were rebuilt at a cost of £12,500, and the nave and west front have now been completed and seating provided; a new organ erected at a cost of £1,250, and the electric light installed. The tower and spire have now to be built at a cost of £5,000. The total outlay on the present scheme has been £15,000.

Sir Thomas Hunter, town clerk of Edinburgh, presided at Glasgow over the Scotch National Conference on the administration of the Housing and Town-Planning Act. Sir George McCrae, of the Local Government Board, in an opening address, expressed pleasure in the fact that the present town planning in Scotland. He was of opinion that there was an association between the present housing conditions and labour unrest, and that that was a matter in which the Government might give them more financial aid.

COMPETITIONS.

A.A. COMPETITIONS, 1912.—The following is the list of awards by the President and Council for last session's work: A.A. Silver Medal and prize value ten guineas, R. M. Pigott, of Wandsworth, Design for the treatment of the head of 'The Serpentine, Kensington Gardens; and A.A. Travelling Studentship: Design for a Memorial Bridge to King Edward VII. Not awarded. A.A. Travelling Studentship Second Prize, value £5, B. W. Riddle, Banister Fletcher Bureau, value Twenty-five Guineas, V. O. Rees, Architectural Union Company's Prize, measured drawings, value £20, W. J. Palmer-Baker, Herbert Baker, Prize for the best drawing in the Sketch Book for 1911, value Five Guineas, W. S. George. Essay Prize: Award not yet made.

ASTLEY BRIDGE, BOLTON.—In the competition for parochial hall, men and women's institute, gymnasium, etc., Mr. John Bennett, Lic.R.I.B.A., of Bolton, has made the following awards. First, Messrs. Marshall Robinson, Son, and Wheeler; second, Messrs. Henderson and Brown; third, Mr. Frank Freeman.

CHELSEA.—We gave a leading article on the 7th inst. in connection with the exhibition of designs for model buildings for the decoration of schools and other institutions, held at Crosby Hall, Chelsea. The committee announce the following competition results:—Scheme for the Gallery of Modern Art, Dublin: Messrs. Walter Bayes, F. Cayley Robinson, James Mark Wilcox, Middlesex Hospital Decoration: A prize of £100 is awarded to Mr. Donald Macdonald Commercial-street L.C.C. School Scheme: Miss Louise Jacobs. Decorations for Cable-street L.C.C. School: Mr. Stanley H. North. Design for School Banners: Award equally divided between Miss Gwynedd M. Hudson and Miss Eleanor Pallett. The results of other competitions will be announced shortly. The exhibition will close to-morrow (Saturday) evening.

HASTINGS.—The assessor appointed to adjudicate the 25 sets of plans sent in to the Hastings Corporation for the proposed sunk bandstand and colonnade a Warrior-square, has made his award as follows: First, Mr. Philip Tree, architect of St. Leonards; second, Mr. Boucher, of London; and the plans of Mr. Hicks, of Bexhill, and Mr. Henry Ward, of Hastings, commended.

PORT OF LONDON AUTHORITY'S OFFICES.—The designs now being prepared by the six selected competitors for the new premises for the staff of the Port of London Authority, are to be sent in by Monday week July 1, and from these the final designs will be selected. Originally, as we have already stated, 170 designs were submitted in the preliminary competitions, and from among these the assessor selected half-a-dozen, seen in by the following architects: Mr. Robert Atkinson, A.R.I.B.A.; Messrs. J. A. Bonville, T. Wallis; Mr. Edwin Cooper F.R.I.B.A.; Messrs. Lanchester, Atkinson, Rickards, F.R.I.B.A.; Mr. J. Reginald Truvelo; Mr. Ernest W. Wray; who will receive an honorarium of two hundred guineas each. The site for the offices is the area comprised within Seething-lane, Crutched-Friars, and Trinity-square, E.C.

There was inaugurated at Naples, on Sunday a monument erected at the expense of the Trustees of the National Association of the Deaf, the philanthropist and pioneer of free popular education in Naples. The monument consists of a marble bust, by Professor Franz Gerth, with a bronze tablet containing an inscription, composed by Signor S. Ruffini.

Sir A. Boscawen's Bill, to provide for the better application and enforcement of the Housing of the Working Classes Act, passed through Standing Committee of the House of Commons on Tuesday. Further amendments were discussed dealing with a provision of the Bill relating to the powers of the local authority also giving to an inhabitant householder in a rural district the right to make a direct representation to the Local Government Board where, for any reason, he was unable to obtain housing accommodation.

Engineering Notes.

CANNING TOWN, E.—The Port of London Authority decided on Friday that the work of constructing the new dock to the south of the Royal Albert Dock should be offered to S. Pearson and Son, Ltd. The cost of the work, based upon the schedule of prices, will amount to about £1,400,000. The contract will include the construction of an entrance lock 800ft. by 100ft. by 45ft. deep; a main dock 4,500ft. long, averaging 600ft. in width and 35ft. in depth, with a water area of 65 acres; a dry dock; a passage connecting with the Royal Albert Dock; moorings, and six sheds, but not the working equipment of the dock. On the south side of the dock vessels will be berthed at jetties to facilitate barge traffic. The ship, accompanied by the Queen, will perform the ceremony of cutting the first sod on Wednesday, July 17.

Building Intelligence.

COLESHILL.—The Roman Catholic Archbishop has laid at Colehill, on a site overlooking the Blythe Valley, the foundation stone of St. Gerard's Hospital for children. It is planned on the pavilion system in three one-story blocks, and provides accommodation for 34 beds. The centre block contains the administration department. The north and south blocks are identical in plan and accommodation, and each comprises ten beds ward and a side bed ward. These are separated by a service block, containing ward kitchen, with closets, bathroom, linen closet, w.c., lavatory, and two cells for the Sisters. The outbuildings contain the coal store, mortuary, and washhouse. The walls are covered with roughcast and the roofs with handmade red tiles. The architect is Mr. Henry Bradford and Birmingham. The contract is for £5,500.

IPSWICH.—The King Edward VII. Sanatorium was opened by Lord Balfour of Burleigh on Friday. It occupies a site 1½ acres in extent on Foxhall Heath, two miles from the town, the gift of Colonel E. G. Pretyman, M.P. The architect was Mr. H. Munro Cautley, of Museum-street, Ipswich, and the builders were Messrs. E. Catchpole and Sons, of the same town, whose tender was £29,390. The Sanatorium comprises buildings and also the entrance lodge are built of red brick, with the upper portion of the walls finished in cement, roughcast, and distempered white. The roofs are covered with hand-made Suffolk plain tiles. The administrative block is a long structure of two stories, which contains accommodation for the medical superintendent, matron, and staff, and in the central portion are also the patients' dining-room. The patients' wards are built in the form of a crescent, the ends of the arch being towards the south. The women have both floors of the east wing, and the men have the rest of the building. The accommodation is for 45 men and 20 women, and comprises nineteen single rooms, fourteen double rooms, and six three-bedded rooms. Outside the concrete terrace, leading by two sets of steps to the ground in front of the building. The first floor is reached by two easy flights of stairs constructed of teak. This is the first sanatorium built with an open-air gallery at the rear, the idea being to enable the patients on the ground floor to put their beds out there. These on the first floor have a wide covered balcony in the front. The sanitary blocks on the north side contain bathrooms, lavatories, a boot room, and a cloakroom. The floors in the dining-hall and residential quarters are red deal laid on birchen mastic over breeze concrete; the other floors are in granolithic paving.

The death is announced of Mr. R. S. Jenson, the chief surveyor to the West Lancashire Railway District, on Friday, June 14, at his residence, 1, East-street, Pontypriid, Glamorgan, retired builder and contractor. Left net personally 9,258s.

The late Mr. David Williams, of 1, East-street, Pontypriid, Glamorgan, retired builder and contractor. Left net personally 9,258s.

PROFESSIONAL AND TRADE SOCIETIES.

THE QUANTITY SURVEYORS' ASSOCIATION.—Mr. Henry Riley has been elected president of this Association for the ensuing year, and Messrs W. J. Carless and T. E. Bare vice-presidents.

THE TOXICITY OF WHITE LEAD.—Mr. Charles A. Line, of Birmingham, delivered a lecture on Thursday night in last week on "The Toxicity of White and Red Lead and Driers in Paint," before the Paint and Varnish Society, at St. Bride's Institute, London. The lecturer said the subject had engaged the attention of British and Continental Government officials, and certain medical specialists, at home and abroad, for over half a century. Expert members of the painting and decorating industries, as well as manufacturers of lead pigments and colour and paint grinding and allied trades, were deeply concerned about the ravages of lead-poisoning and its terrible sequelae, displaying an earnest desire to minimise the suffering and mortality, whilst searching for a remedy. Stating the magnitude of the evil had not been realised, Mr. Line went on to give results of his own efforts to increase the energy with which the appalling and increasing danger must be faced, and to induce all concerned to acquaint themselves with the best methods of combating the evils to which so many workers are inevitably exposed.

The death is announced of Mr. B. King, borough surveyor of Sarnbold, at the early age of 58 years.

Mr. James Andrew has resigned his position as surveyor at Hensburgh in order to take up the duties of surveyor for Dumbarthshire.

The oak-panelled Jacobean Globe room in the Reindeer Inn, Banbury, in which Oliver Cromwell held a council of war prior to storming the castle, has been purchased by Messrs. Lenzyon and Co., interior decorators, of Old Burlington-street. The room will be re-erected in Messrs. Lenzyon's premises.

From the report of the finance committee submitted at Friday's meeting of the Metropolitan Water Board, it appeared that the Board received for building supplies during the last half-year was £10,893. Meter and bulk supplies brought in a revenue of £350,190, and domestic supplies no less than £1,866,274, making a total of £2,207,157 for the six months.

Mr. E. Dudley, one of the inspectors of the Local Government Board, held an inquiry on Monday at the borough hall, Stafford, as to an application of the town council for permission to erect a plot of land at the Green purchase for effecting street improvements, as a site for the new free library, to the erection of which Mr. Carnegie had offered £5,000 provided the council gave a free site. There was no opposition to the application.

The memorial stone of the Hannah More Memorial Hall will be laid at Fishponds, Bristol, to-morrow (Saturday). The hall will cost £5,693, and will provide a number of rooms on the ground-floor, and over these an assembly-room for the purpose of lectures. It will be built of local Pennant stone, with stone dressings. The architect is Mr. Maynard Ford, L.R.I.B.A., of St. Stephen's-chambers, Baldwin-street, Bristol, and the contractor is Mr. W. F. Read, of Hinton.

During the week a party from the engineers' department of the G. & R. have been taking the levels and approximating quantities for the proposed viaduct over the railway crossing at Freint. This was in accordance with the instructions given at a recent conference by the county authorities committee at Peterborough. Consultations were had with the Peterborough city surveyor, Mr. J. W. Walslow, and it was decided to construct one half of the bridge, which will be 80ft. wide, at a time.

The birthday honours include knighthoods for Mr. Charles Hercules Read, Keeper of the British Antiquities at the British Museum, and President of the Society of Antiquaries; for Dr. Charles Waldstein, late Slade Professor of Fine Art at Cambridge University; and for Mr. Whitworth Wallis, the Director of the Birmingham City Museum and Art Gallery. The distinction of K.C.B. is conferred on Dr. Frederic George Kenyon, director and principal librarian of the Bodleian Library, Mr. William G. B. L.S.O., assistant secretary of H.M. Office of Works, is appointed C.M.G.

LEGAL INTELLIGENCE.

MUNN v. LAMBETH BOROUGH COUNCIL. At the Lambeth County-court, Camberwell New-road, on Friday, before his Honour Judge Parry, Cecil Anshutz, Munn, painter and decorator, of 78, Endlesham-road, Balham, brought a claim of £67 15s. 4d. against the Lambeth Borough Council for extra wages paid and damages sustained by delay in the execution of a contract for painting the railings and gates of the council's cemetery in Blackhawk-road, Tooting. The claim included £12 12s. 6d. for wages, and £54 12s. 6d. for delay, and other items. Mr. J. Morgan May, counsel for the plaintiff, A. G. Hardy, of 7, Serpentine Inn, Temple, E.C., appeared for the plaintiff, and Mr. G. W. Dwyer, instructed by Messrs. Miller and Smiths, Salers' Hall-court, E.C., represented the defendants. In opening the case Mr. May claimed that in October last the Lambeth Borough Council received about forty tenders for the painting of the ironwork at their cemetery in Tooting, ranging from £105 16s. 6d. to £465 12s. 6d. and accepted the lowest—that submitted by his client. The conditions of contract provided that payment for extras would only be made upon authorised orders given by the council's borough engineer, who was proved to have been a properly-accredited agent, and it followed that any work done under orders so given by the engineer must be paid for. He confessed he could not substantiate the way in which the plaintiff had worked, but he did not intend to submit that extra work was done, and delays which involved loss were occasioned under the direction either of the borough engineer or the clerk of works, or the council employed in the job. The contract was a verbal one, made in writing, and should be closely adhered to. Under its provisions the time allowed was one month from the date when the work was ordered in writing to be commenced. Part of the claim, it would be seen, was for loss involved by delay by the borough engineer and his assistants in specifying a finishing tint, clauses 10 and 11 of the specification provided that the trades rates of the borough engineer should be paid for, and these were particularly at 85d. per hour for painters, 75d. for scaffolders and carmen, and 7d. for labourers. Work was begun on October 16, and a lengthy correspondence took place, which was continued until the plaintiff almost from the first of the delay in giving instructions, pointing out that this would drive the work into shorter and darker days, and was a gross waste of money. He repeatedly made verbal requests for his finishing tint to be chosen, but was informed that he must in no account begin the third coat until he had received further orders from the engineer. Plaintiff engaged for the job "brush hands," who were paid at the rate of 10s. a day, which was little better than labourers to whom he paid the market rate of 7d. an hour. A fortnight after the job had started the clerk of works objected to this, and insisted that they should be paid at the rate of 10s. a day. Plaintiff pointed out, as counsel thought, very reasonably, that such a rate was only applicable to much superior work, whereas these were outside railings of a cemetery, in great part facing a railway cutting, or embankment, but the clerk of works would not listen to him, referring Mr. Munn to the contract, and, under protest, he paid the 10s. One item in the claim was to be defended, the 11s. 10d. difference which was, he contended, not payable in the case of weather. The delay in specifying the tint of the finishing or third coat involved considerable expense in this way. On a contract for an extensive run of railings, some 100 have been made, and the expense in the first coat of the finishing tint was applied the second, and in turn the third or finishing coat, for while a portion of the first coat work was waiting the most appropriate tint, it became necessary to do this and then the third coat was washed down at the end of the day of time and labour, and for this plaintiff claimed. Another item in his claim related to the loss involved by delay driving the execution of the contract in inclement weather. When the job was completed plaintiff found that the council, stating that it was caused by delay and interfering a loss of £70 out of pocket on the contract, without allowing anything for his own loss. He asked for some redress, but the council refused, but was refused. His Honour said it seemed to him that when a special clause was put into the contract stipulating that 85d. per hour must be paid to extra painter, it was not unreasonable to suppose that a similar clause was intended to be inserted in the contract, and that no member of a council would pay the same rate for painting cemetery railings as for the best.

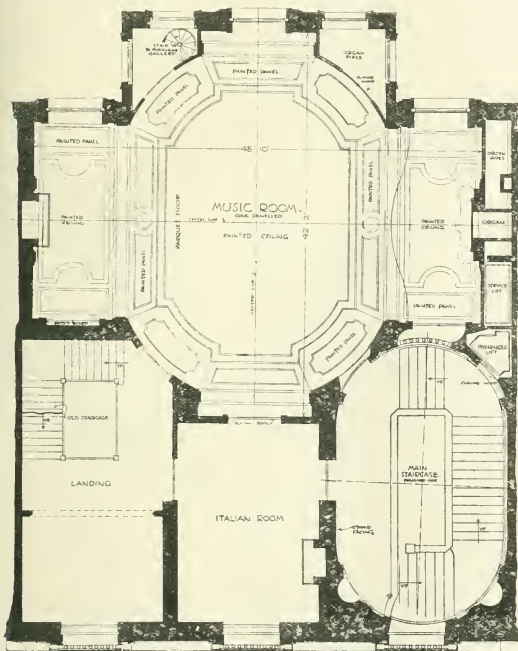
See our issues for Oct. 6 and 13, 1911, pp. 473, 247 and 332.

Our Illustrations.

SIR EDGAR SPEYER'S HOUSE, GROSVENOR STREET, S.W.

This elevational drawing is hung in a central position on the western end wall of the Architectural Gallery at the Royal Academy. As will be seen from the accompanying plan of the first floor, the internal contrivance of the mansion is of a palatial kind, in harmony

cluding the basement. The lighting throughout is of fireproof construction, the floors and roof being of reinforced concrete and steel, and the interior walls of fireproof material. The premises above the ground floor are entirely supported on girders spanning the building. Therefore the ground floor admits of an unobstructed showroom, occupied by the Daimler Company, Ltd. The rear portion of the basement floor is also occupied by this motor company. The cars enter the building at this level and are served to the showroom



FIRST FLOOR PLAN

SIR EDGAR SPEYER'S HOUSE, GROSVENOR STREET, S.W.

with the exterior, which is carried out in masonry. The music-room forms the chief feature on this level, which has a range of pedimented windows facing the street. Messrs. Detmar Blow and Fernand Billey, of Westminster, are the architects.

DETAIL OF DESIGN FOR STOCKPORT POLICE BUILDINGS.

This drawing was submitted in the competition for the above. It explains the type of designs submitted for the subject, and is exhibited in this year's Royal Academy. The architect is Mr. Edwin Cooper, F.R.I.B.A., of Gray's Inn-square, W.C.

DAIMLER HOUSE, BIRMINGHAM.

The building, of which Mr. A. Gilbey Latham is the architect, has been erected for the Paradise-street Properties, Ltd., and is situated on a prominent site near the centre of Birmingham. The front elevation, which is carried out in Portland stone, is 46ft. wide, and consists of seven floors, in-

cluding the basement. The building is carried out in fireproof construction, the floors and roof being of reinforced concrete and steel, and the interior walls of fireproof material. The premises above the ground floor are entirely supported on girders spanning the building. Therefore the ground floor admits of an unobstructed showroom, occupied by the Daimler Company, Ltd. The rear portion of the basement floor is also occupied by this motor company. The cars enter the building at this level and are served to the showroom

NEW CHURCH, PARK WALK, CHICHESTER.

This new church will shortly be erected on the site of the present Park Chapel. Plans were originally prepared some thirteen years ago, but the scheme collapsed through lack of funds. Owing, however, to the munificence of a private donor, for many years resident in the neighbourhood, who has undertaken to bear the entire cost, the project has again taken shape, and drawings for a church to hold 700 people, as shown in our illustration, have been prepared. The nave and aisles, divided into four bays, are arranged in the usual manner; the organ chamber and ample vestry accommodation are provided on the north side of the chancel, while a small



DAIMLER HOUSE, BIRMINGHAM.

chancel aisle on the south side maintains the communication between the south aisle and east end of the chancel. Ingress and egress are provided for by four entrances at the N.E., S.E., N.W., and S.W. corners of the church respectively, the last-named entrance being through the tower. The walls will be faced both externally and internally with red brick, Doubling stone being used for the spire, windows, quoins, buttress weatherings, copings and other external features, while Cornbrigt Bath stone will form the piers of the nave arcade. The nave and chancel roofs will be covered with red tiles, and those of the aisles with green slates. The rough timbers of the roof will be in Baltic fir and the wrought timbers, bonding, ribs, cornices, etc., in Oregon pine. The floor of the nave will be laid with wood blocks, those of the tower and porch with tiles, and that of the chancel with mosaic. The building is to be electrically lighted and warmed by a system of low-pressure hot water radiators. The architects are Sir Arthur Blomfield and Sons.

FACADE FOR A BRANCH INSURANCE OFFICE.

(For the Assessor's award in this BUILDING News Designing Club competition, see page 870.)

At Mozecy, County Cork, a new church, Romanesque in character, has been built from plans by Mr. S. F. Hynes, F.R.I.B.A., South Mall, Cork, and was opened last week. The builder is Mr. John Coffey, of Middleton.

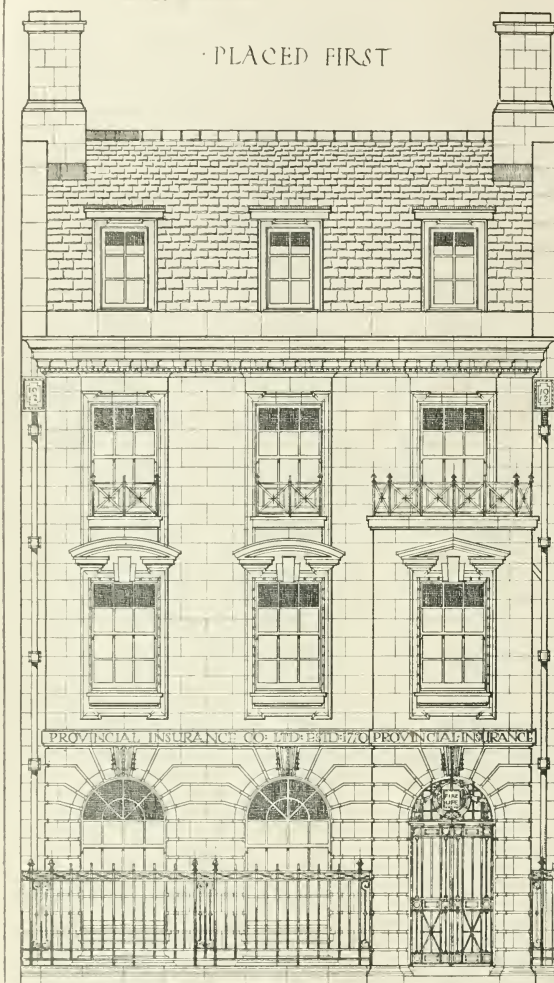
A course of vacation study which is somewhat out of the ordinary has been arranged for the students of the engineering department at the Manchester University. About twenty students of all years and two members of the staff are set in on a surveying expedition in Derbyshire. Castleton will be the centre, and it is proposed to spend two or three weeks over the work.

PLACED FIRST

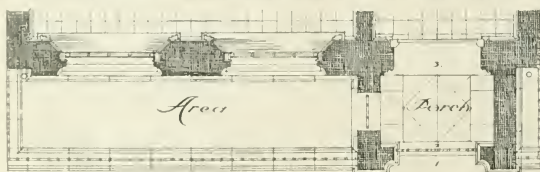
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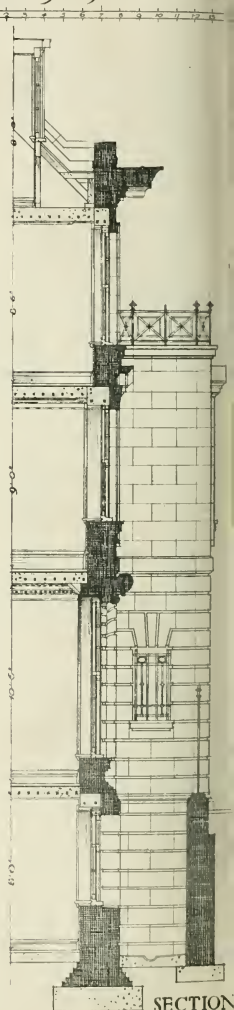
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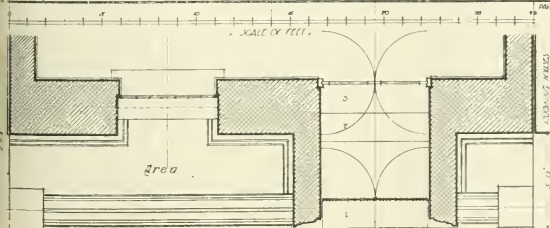
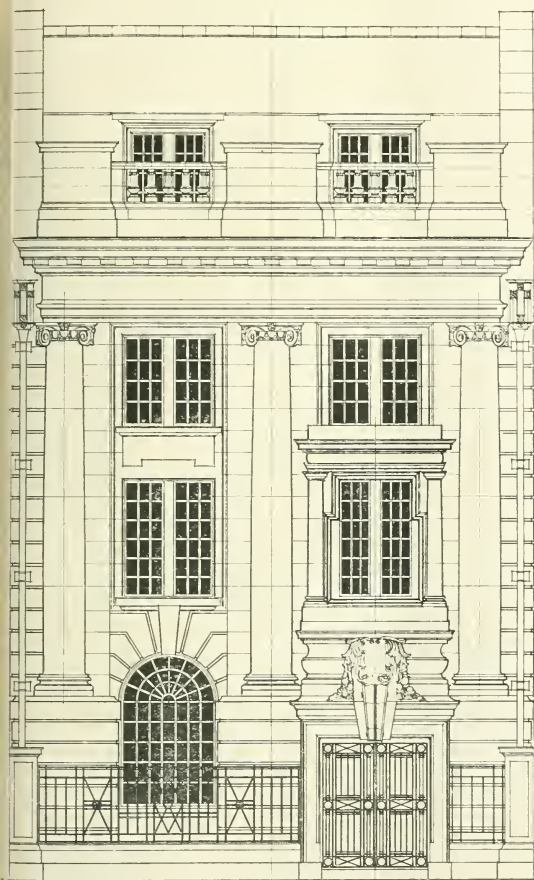
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GROUND FLOOR



SECTION

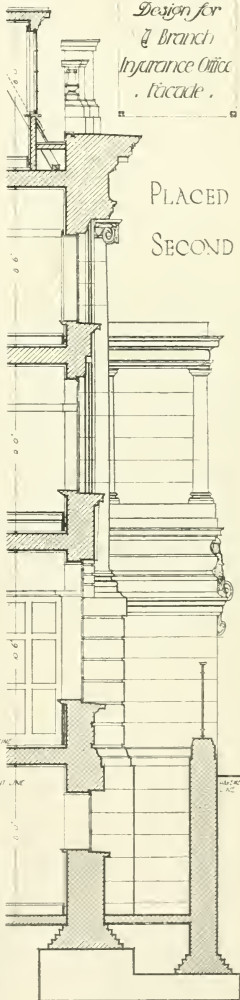


. Plan, at Ground Floor Level .



"Building New"
Designing Club

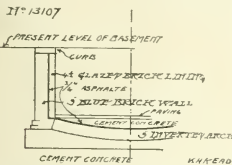
*Design for
A Branch
Insurance Office
. Facade .*



. section.

in division. The division to be brass 1 in. at top with 3 in. wrought-iron rod, detachable, and fitting into strong iron screw eyes. This rod is to be fitted with approved cloth curtains, one pair to each box, hung on number six to each curtain strong brass rings of sufficient size to run easily on rod. Fit up in boxes where shown 1 in. deal seats, lugged with one pair of 3 in. bolts to hold 1 in. back-piece, securely fixed to wall. Fit to wall on one pair each 2 in. cast butt, 1 in. cut and shaped deal brackets, two to each seat. The floor to fall towards a 4 in. channel by the wall, and each box provided with a wooden-leaded grating. The divisions can be kept in place when shut against wall by means of the bolt used for fixing when in use, and providing another socket in the floor. The whole to be framed of well-seasoned and dry material, well fitted, wedged, and glued together, and knotted, oiled, and primed, and painted four coats of the best oil-colour to preserve the timber from the effects of the water in the bath. The method of joining is clearly indicated in the sketches. —Gordon L. Thorpe, 10, Atterley-road, Southampton.

[13107]—WELL.—As the machinery for a lift is expensive, it would be better not to risk anything on the score of cheapness. The accompanying sketch



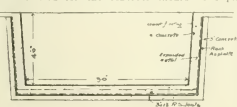
illustrates a good method—a 9 in. blue brick-cement wall, covered with asphalt, and lined internally with glazed bricks, the asphalt being taken over the inverted arch, which is used to resist the pressure from a possible bursting of the water. A provided access at each end, so as to be able to pump the water from the excavation if necessary, and give work an opportunity to set down. If a lift is desired for the machinery, the floor had better be dropped, and the concrete taking the paving used for that purpose, so as not to interfere with the asphalt waterproof course to the well. —K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

[13107]—WELL.—Sketch herewith shows details of well-hole to泉水's requirements. He does not



state, however, the type of lift he intends using—whether it be electric, hydraulic, or hand-power. Consequently, he must make the necessary alterations to this detail to suit his lift engineer's details. The chief concern, however, appears to be to get particulars of a well-hole which would be waterproof, and this detail will give him such a well-hole. "Puddle" mentioned is a patent waterproofing material used by the War Office, and manufactured by Kerper, Greenwood, and Co., of Ann-square, King's Lynn.—Frank Wilson, 225, Nottingham-street, Sheffield.

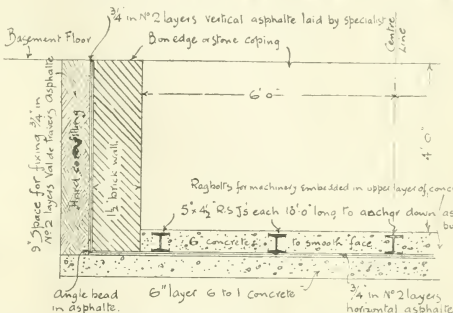
[13107]—WELL.—As there is a considerable amount of water under the basement floor, there will be a certain amount of pressure caused by the water, and tending to lift the floor and turn the sides of the well. Therefore, the most inexpensive method (to the long run) will be to construct the bottom and sides of the well with reinforced concrete, together with a lining of rock asphalt, and the sides should have a 3 in. batter. A quick-setting cement should be used, and the proportion of the materials used for the concrete should be 4 parts



of broken bricks, 2 parts of sand, and 1 part of Portland cement; and the reinforcement should be expanded metal, and, in addition, 3 in. by 1 in. rolled-steel joists, spaced 3 ft. apart, should be used across the bottom, and the expanded metal fastened to the same. It is difficult to ascertain the pressure exerted on the bottom without making experiments, and the proportion and nature of the reinforcement has to be somewhat assumed. The water can be kept out of the excavation during the progress of the work by pump. If it is not sufficient, however, it may be used. A 3 in. layer of concrete must be laid first to the bottom and sides, then a 2 in. thickness of rock asphalt put on the concrete, and then a 3 in. thickness of concrete with the reinforcement.

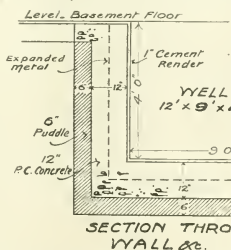
The first 3 in. thickness of concrete is only to form a ground for the asphalt. If it is desired, brick work in cement could be used instead, and the 3 in. thickness of reinforced concrete takes the pressure of the water. The finished surface of the concrete will be floored with concrete. —Gordon L. Thorpe, 10, Atterley-road, Southampton.

[13107]—WELL.—The water will probably lift and break up the horizontal asphalt and concrete unless held in position with the 2 in. by 4 in.



R.S.J.'s, which also assist to distribute weight of machinery. Floor of pit should be formed with slight fall to small pump or shallow catchpit for washing-down purposes, and steps or ladder fixed access to machinery bed.—G. T. Cary, Lic. R.I.B.A., Cedar-road, Weybridge.

[13107]—WELL.—An efficient and not too expensive method of constructing well as desired by "Interested" would be as follows.—Having made the necessary excavations to the size required (sufficient for the machinery being provided with cope with the ground-water), a layer of puddled clay, 6 in. at least in thickness, should be spread over site and around all four sides—this to be carefully rammed in position. A bed of concrete 12 in. in thickness to be then laid over whole site, and carefully poured. (Note.—Concrete to be placed in position, not timbering for constructing the walls should be placed securely in position. The surface of concrete bed immediately beneath the walls should then be



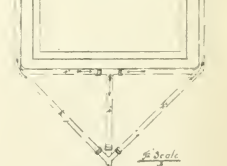
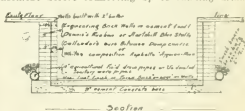
cleaned off, and washed with cement mortar before commencing the concrete walls, which can then be built in the usual manner. The whole of interior of well to be rendered with cement mortar 2 parts Portland cement to 1 part clean, sharp pit sand, 1 in. in thickness. The concrete for falls and floor to be composed of 1 part Portland cement, 2 parts clean, sharp sand, and 4 parts fine, or other suitable material. To counteract any pressure from the ground-water, and to insure a homogeneous structure, sheets of expanded metal (3 in. thick by 3 in. mesh) should be embedded in both floor and walls, as shown in sketch. If properly carried out, the above should give ever satisfactory results.—F. D. Gell, City Surveyor's Office, Chichester.

[13107]—WELL.—In answer to "Interested's" query, the well to meet his requirements would best be constructed with walls and floor of concrete. Excavate the gravel 4 ft. wider and longer and 12 in. deeper than the required finish made. The gravel being waterlogged, sheeting would be required, and this should be strong, so as to oblige the use of struts as far as possible. The floor should then be laid 1 1/2 in. thick, and upon this "shuttering" for the concrete walls to be erected to give the finished inside size, and the space between this and the sheeting filled with concrete to form the walls, which will be 4 1/2 in. thick. To prevent water accumulating in the well during construction, and to relieve the pressure on the sheeting, one or more small pits should be laid at a short distance from the proposed walls and a foot or so deeper than the

well. In this the water will flow, and can be pumped out. The lower struts should be fixed below the floor-level, and the upper ones above the walls, to prevent them interfering with the shuttering, and the sheeting should be confined both below and above to allow of this. If necessary, the sheeting can be dug out on completion, otherwise it may be left in. The lower struts, of course being under the floor, cannot be removed. The concrete should be composed of 2 parts brick or sand to 1 part 1 in. mesh, 1 1/2 parts sand, at 1 1/2 in. cement, and

should be used with comparatively little water. The thickness of the walls and floor may be considered excessive; but allowance must be made for the possibility of portions being washed away with the running water before the concrete has set. If a cement finish is required to the walls, the face of shuttering should be dressed and covered with soft soap or cr-o-te to prevent adherence to the concrete. Tiles would make a good finish to the walls if something better than a cement finish is desired. —A. L. Johnston, Abbotshill-road, Kircaldy.

[13107]—WELL.—Assuming "Interested's" well site permits of fixing lines of 4 in. agricultural field pipes, or 4 in. sanitary-ware pipes (unjointed), with turn of level for fall of each pipe fixed on the exterior of well walls with Y junction connection, and main carried forward to an existing rain-water drain, or ground level adjoin of the said drain being turned into a pond or clean-water course—the latter assuming "Interested's" is in the country. If a town house, then fix intercept-trap in dis-charge-chamber within an area on exterior of basement before connecting up to existing drainage



scheme, to suit to per sketch plan herewith, constructing walls, floor, and drains as per sketch referred to, and description given thereon. Further assuming that the drainage portion of the scheme given above is impracticable, then, having excavated the site to depth, width, and length required to receive flow, pumping operations being carried out during the excavating process by conveying water along Y-shaped or other kind of wooden or iron troughs to the exterior of house, and having sur-

A great amount of interest was manifested locally in the attempt to dispose of the Lugwardine Encaustic Enamelled and Art Tile Works by Messrs. Alfred W. Dando and Co., auctioneers, of Dudley, acting on behalf of the proprietors of the works, Messrs. W. J. Godwin and Son, at the Law Institution, Hereford, on Tuesday in last week. The auctioneer said the works were established 10 years ago by Mr. Godwin, and had been carried on uninterrupted since that time.

the whole of the time. They were admirably equipped works, were close to the railway line, and a siding ran right into the works. Practically the whole of the motive power was included in the sale, but the stock could be taken at a valuation if desired. He was there with liberal instructions, and felt perfectly satisfied that if there was anyone present who required the works, the amount of the reserve was sure that they would have no difficulty in rising to the price. No offer was made for the works, and the auctioneer announced that anyone desirous of treating privately for the sale could do so with himself or with a Hereford firm of solicitors.

On the invitation of the British Government, the third International Road Congress will be held in London in 1913, in order to continue the studies, begun in Paris in 1908, regarding the construction and maintenance of roads in view of modern methods of locomotion. This Congress, at which the Governments of the different States have been invited to be officially represented, will open on June 23, and will last six days. It is organised by the Permanent International Association of Road Congresses, formed in Paris in 1908, and by an Organising Committee formed in London in 1910. An exhibition of Road Materials and Machinery will be held at the Royal Horticultural Society's Hall and in adjacent ground during the session of the Congress.

Mr. Frederick Ingle, of the well-known firm of Dennett and Ingle, whose death on the 30th ult. was recorded in our issue of the 7th inst., left estate of the gross value of £160,149 19s. 6d., with net personality £149,176 7s. 5d. He has bequeathed £35,000 to charities in London, Nottingham, and Lincolnshire, and some varying from £50 to £1,250 to his workmen. The last-named sum and the option of the purchase at 30 per cent. less than the figure at which they appear in his books, of all or any of his business effects, plant, or stock-in-trade, etc., is left to his executor and London manager, Mr. G. Neat. The widow of his foreman, William Freeman, receives £100. He has also bequeathed £100 to Rose King, daughter of his late housekeeper, and £200 and furniture and linen to his housekeeper, Edith Emma Smith. Mr. Ingle seems generously to have remembered in his will almost every possible relative; some sixty are named. He has directed his executor to advertise some of these bequests in the *Advertiser*. He has also named the United States, stipulating that any legacy not claimed within twelve months is to revert to his residuary estate.

MEETINGS FOR THE ENSUING WEEK.

FRIDAY (To-day).—Conference on Standardisation of Road Materials, under auspices of the Engineering Standards Committee.

SATURDAY (To-morrow).—Society of Architects. Students' Section. Sketching Visit to Morden College, Blackheath. To meet at the College, 3 p.m.

MONDAY.—Royal Institute of British Architects. Presentation of the Royal Gold Medal. 8.30 p.m.

Mr. V. J. Grose, district surveyor for Bermondsey, has resigned his appointment owing to failing health.

The Bath Surveying Committee, at a meeting held at the Guildhall, Bath, on Monday, decided to recommend the city council to obtain tenders for the Orange-grove improvement, including the retaining-wall, the total estimated cost being £8,000, and that application be made to the Local Government Board for sanction to borrow the sum.

The City Corporation have completed arrangements with the District Railway Company for the connection of the Mansion House Railway Station with the subway which is to be driven under Cannon-street from the station to a point opposite Bow-lane. The agreement provides for an opening into the public subway of the station premises, the construction of a public staircase at the corner of Cannon-street, upon the site of the present booking office, beneath the footway in Garrick-lane. The estimated cost of the work is £16,000, and the Street Committee of the Corporation is to start immediately with construction.

Trade News.

WAGES MOVEMENTS.

EMPLOYMENT IN MAY. The monthly report of the Labour Department states that employment continued to improve during May, and by the end of the month was as good, on the whole, as before the national strike. In the 36 trade unions, with a net membership of 836,949, making returns, 22,307 (or 2.7 per cent.) were returned as unemployed at the end of May, 1912, compared with 3.5 per cent. at the end of April, 1912, and 2.5 per cent. at the end of May, 1911. Returns from firms employing 453,098 workpeople in the week ended May 25, 1912, showed an increase of 4.2 per cent. in the amount of wages paid, compared with a month ago, and of 6.6 per cent. compared with a year ago. The changes in rates of wages taking effect in May affected 201,000 workpeople, and resulted in a net increase of 47,400 per week. Amongst those whose wages were increased were nearly 14,000 building trade operatives in various districts.

TRADE NOTES.

Messrs. Wm. Potts and Sons, Ltd., clock-makers, Leeds, who a short time ago erected the clock and bell in the Shuttlevorth Memorial Tower, Holbeck Gardens, Scarborough, are now erecting clock and bell at the Scarborough College, Scarborough, for the governors. The new clock is new clocks. Holy Trinity Church, Carlisle, Cumberland, and Brough Kirk Edward Memorial clock and bell for Kirky Stephen, Westmoreland, for the chairman and committee, also making a new clock and bell for the Joseph Rowntree Schools' trustees, the Cocoa Works, York.

The Council schools, Athley-street, Macclesfield, are being supplied with Shorland's warm air ventilating patent Manchester grates by Messrs. E. H. Shorland and Brother, Ltd., of Falsworth, Manchester.

The "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air-inlets, has been applied to Messrs. Vickers, Ltd., new offices, Barrow-in-Furness.

The Coaststone Decoration Co. wish to give notice that, owing to an alteration in the Telephone Directory, their number, which was 7, will be 8316 City, but they are still at their old address, 77, Mortimer-street, Regent-street, W.

The corporation of Sheffield have resolved to double the tramway line from Tupton Park-road to Manchester-road at an outlay of £10,475, and to renew the track in Nethergreen-road at a cost of £2,300.

The urban district council of Barnoldswick have appointed Mr. W. Ellis as surveyor, and Mr. S. Wigham as sanitary inspector and sewage engineer to succeed Mr. W. Bennett, the former surveyor.

At Wednesday's meeting of the London Education Committee, Mr. Alfred Joseph Bull was appointed Principal of the London County School of Photo-Engraving and Lithography, at a salary of £400 a year, rising to £500.

The death is announced in his sixtieth year of Professor Ernest Acker, architect, of Brussels, and vice-president of the class of Beaux-Arts at the Royal Academy of Belgium, a member of the Royal Commission on Monuments. He was a professor at the Royal Academy of Brussels, and had received several decorations from the King of the Belgians and the French Government.

Mr. F. O. Stanford, A.M.I.C.E., a Local Government, Board Inspector, held an inquiry at the Council House, Birmingham, on Tuesday, in regard to a number of road improvements and other schemes which the city council have in view, and the estimated cost of which aggregated £38,619. The proposals included an application to borrow £3,655 for the widening and improvement of Sandy-lane; £6,386 for the widening of Alton Road to 60ft., and Bedford-lane to 50ft.; £2,350 for improvements in Brook Vale road; £10,000 for widening of the canal bridge; £6,250 for constructing a bridge over the River Cole at Forman-road, Sparkbrook; £514 for paving the upper part of Bennett's Hill with oak blocks; £1,620 for putting down wood-paving in Great Charles-street; £2,440 for substituting granite blocks for macadam in Landor-street; £5,093 for similar work in Arden-road; and £1,127 for the work of sewerage in Woodthorpe-road, King's Heath.

LATEST PRICES.

IRON.

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| Steel Joists, Belgian and German | per ton | £5 12 6 to | £5 17 6 |
| Tex steamer, London | per ton | £5 12 6 to | £5 17 6 |
| Steel Joists, English | per ton | £5 10 0 to | £5 15 0 |
| Wrought Iron Girder Plates | per ton | £5 10 0 to | £5 15 0 |
| Steel Girder Plates | per ton | £5 10 0 to | £5 15 0 |
| Bar Iron, good Staffs | per ton | £5 10 0 to | £5 15 0 |
| Do., Lowland, Flat, Round, or Square | per ton | £5 10 0 to | £5 15 0 |
| Do., Welsh | per ton | £5 10 0 to | £5 15 0 |
| Roller Plates, 18 in. x 10 in. | per ton | £5 10 0 to | £5 15 0 |
| South Staffs | per ton | £5 10 0 to | £5 15 0 |
| Best Sneebliss | per ton | £5 10 0 to | £5 15 0 |
| Wrought Iron, Tees 28s. per ton | per ton | £5 10 0 to | £5 15 0 |
| Builders' Hoop iron, for roofing, etc. | per ton | £5 10 0 to | £5 15 0 |
| Galvanised Corrugated Sheet Iron | per ton | £5 10 0 to | £5 15 0 |
| 18 to 20 in. No. 22 to 24 in. | per ton | £5 10 0 to | £5 15 0 |
| 6ft. to 8ft. long, inclusive | per ton | £5 10 0 to | £5 15 0 |
| Best ditto | per ton | £5 10 0 to | £5 15 0 |
| Wire Nails (Points de Paris) | per ton | £5 10 0 to | £5 15 0 |
| 83 8 9 9 103 11 119 12 14 13 6 | per ton | £5 10 0 to | £5 15 0 |

| | Per ton. | Per ton. |
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| Cast-Iron Columns | £5 10 0 to | £5 15 0 |
| Cast-Iron Sash Weights | £5 10 0 to | £5 15 0 |
| Roller-Iron Fencing Wire | £5 10 0 to | £5 15 0 |
| Roller-Iron Fencing Wire | £5 10 0 to | £5 15 0 |
| Cast-Iron Sash Weights | £5 10 0 to | £5 15 0 |
| Cut Floor Brads | £5 10 0 to | £5 15 0 |
| Corrugated Iron, 24 gauge | £5 10 0 to | £5 15 0 |
| Galvanised Wire Strand, 7 ply. | £5 10 0 to | £5 15 0 |
| 11 B.W.G. | £5 10 0 to | £5 15 0 |
| B.B. Drawn Telegraph Wire, Galvanised | £5 10 0 to | £5 15 0 |
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BUILDINGS—continued.

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| Huddersfield—Additions to Restaurant, Buxton-road | Industrial Society | J. Berry and Sons, Architects, 3, Market-place, Huddersfield | June 24 |
| Cardiff—Nursery for Infants at Headquarters Homes | Guardians | E. Seward, F.R.I.B.A., Queen's Chambers, Cardiff | 24 |
| Ayrshire—House | J. Nelson | E. Berwick, 25A, Lawson-street, Ayrshire | 25 |
| Birmingham—Platform Covering | Great Western Railway Co. | A. E. Bolter, Sec., Paddington Station, W. | 25 |
| Belfast—Caretaker's House at Malone Hall, Whiteabbey | Building Committee | D. Coote, 6, Lewis-street, Belfast | 25 |
| Whitehaven—Additions to Town Hall | Education Committee | H. Cooper, M.S.A., High-street, Wallingford, N.E. | 25 |
| Wigan—Repairs to Town Hall | Urban District Council | H. W. Dobb, Architect, Town Hall, Edmonton | 26 |
| Wigan-on-Thames—Additions to Electricity Building | Corporation | R. H. Clinch, Rono' Sec., Municipal Offices, Kingston-on-Thames | 26 |
| Worcester—Offices and Dining-room at Robin Mill | John Dixon and Sons | J. Hardley, Architect, Epsom | 26 |
| Worcester—Additions to Rod Lion Hotel | D. J. Flood | J. P. McGrath, M.R.I.A.I., Architect, 6, Castle-st., Londonberry | 26 |
| Wolverhampton—Fingerpost at Workhouses | Kendal Guardians | S. Shaw, F.R.I.B.A., 15, Highgate, Kent | 26 |
| Kirkcaldy—Additions to Town Hall | School Board | T. Morris, Architect, 62, Academy-street, Liverpool | 26 |
| Blackburn—Extensions to Fever Hospital, Park Lee-road | Health Committee | P. F. Beaumont, M.R.I.B.A., Southgate Chambers, Halifax | 26 |
| Ararat—House, Outgang-road | J. Berwick, 17, Prince, Aspinall | W. Stubbs, C.E., Rono' Eng., Municipal Offices, Blackburn | 26 |
| Newbridge—Repairs to Wesleyan Chapel | Corporation | J. Jelbert, Fretinain, Guildbridge, Penzance | 27 |
| Winchester—Lodge, Pavilion, and Bandstand | Rural District Council | T. Holt, Town Clerk, Guildhall, Winchester | 27 |
| Thorney, Isle of Ely—Cottages | Repton Isolation Hospital Com. | R. W. Saunders, Architect, Gordon Villas, Repton | 27 |
| Wigan—Extensions to Isolation Hospital, Sandy Pits-lane | Urban Council | The Town Clerk, Court House, Longford, Ireland | 27 |
| Longford—Dwellings (40) | Guardians | Philips and George, Architects, 31, Promenade, Cheltenham | 27 |
| Winchester—Additions to Workhouse Infirmary | Governors | A. Plett, 128, Castle Hill, Hindley | 27 |
| Hirewell—Sunday School Extensions | O. B. Caldwell, Architect, Penzance | J. Rices, Architect, Penzance | 27 |
| Treorchy—Hall, Station-road | D. Thomas | P. J. Thomas, Architect, Bridgend | 27 |
| Newton Abbot—Scale House, Ayre, and Technical College | Newbury Urban District Council | S. S. Grimley, M.I.C.E., Council Offices, Hendon | 27 |
| St. Euryan—Constitutional Club | H.M. Works Commissioners | G. W. Wilson, Clerk, Council Offices, Newbury | 27 |
| Wabbeville—Houses (40) | Urban District Council | The Secretary, H.M. Office of Works, Storey's Gate, S.W. | 27 |
| Peterborough—Extending Post Office | Corporation | H. B. Williams, Rono' Eng., Town Hall, Worthington | 27 |
| Wokingham—Alterations to Carnegie Lecture Hall | Education Committee | H. Dixon, Rono' Sec., Municipal Offices, Stamford-on-Avon | 27 |
| Stamford-on-Avon—Workmen's Cottages, Brunning-road | Joint Burial Board | The Borough Surveyor, Town Hall, Paddington, W. | 27 |
| London, W.—Public Laundry, Kenal-road Baths | North Riding Education Committee | J. T. Wrigley, Sec., Education Offices, Northallerton | 27 |
| Liverpool Museum—Alterations to Council School | Northumberland Education Com. | C. Williams, Sec., The Moor Hall, Newcastle-on-Tyne | 27 |
| Punchbowl—Mortuary Chapel, Conventry, Dowdall-hill | Rural Board | J. Harding and Son, Architects, 18, High-street, Salisbury | 27 |
| Whitley Bay—Secondary School | South Manchester Guardians | M. J. Gorman, F.M.A.S., 15, King-street, Manchester | 27 |
| Salisbury—Rebuilding Chapel, London-road Cemetery | Town Council | The Borough Engineer, Town Hall, Luton | 27 |
| Wilton—Lodge, Wagon, Drainage at Workhouse | H.M. Works Commissioners | The Secretary, H.M. Office of Works, Storey's Gate, S.W. | 27 |
| Luton—Old Boarding School Extension | Education Committee | W. J. James, A.M.I.C.E., Rono' Eng., Great Alie-street, E. | 27 |
| Aylesbury—Extending Post Office | Carmarthenshire County Council | H. W. Longdon, Rono' Sec., Town Hall, Acrey, S.E. | 27 |
| Stepney, E.—Laboratory Public Health Offices | Kennington & Chelsea School D.M. | W. V. Morgan, A.R.I.B.A., County Architect, Carmarthen | 27 |
| Penge—Alterations to Melville-road School | H.M. Works Commissioners | The Secretary, H.M. Office of Works, Storey's Gate, S.W. | 27 |
| Garnant—School (511 places) | West Riding Education Committee | The Education Architect, County Hall, Wakefield | 27 |
| Paristad—Manual Training Room | Cardigan Education Committee | Townsend and Furtham, Architects, Cross-street, Peterborough | 27 |
| Reidford—Extending Post Office | Moriais Castle Golf Club | Lacey and Upcher, Architects, 6, Upper King-street, Norwich | 27 |
| Thrybergh—School House | County Education Committee | T. W. Francis, Clerk, Council Offices, Eilemberg Port | 27 |
| Peterborough—Additions to Infirmary at Workhouse | Cardigan Education Committee | S. F. Haywood, Rono' Eng., Municipal Offices, Brighton | 27 |
| Conisburgh—Caretaker's House at Sally-street School | County Education Committee | The Secretary, H.M. Office of Works, Storey's Gate, S.W. | 27 |
| Ellesmere Port—Cemetery Chapel | County Education Committee | The Secretary, H.M. Office of Works, Storey's Gate, S.W. | 27 |
| Brigholme—Public Baths in Mill Road-street | County Education Committee | C. Dickens Lewis, County Architect, Aberystwyth | 27 |
| Enfield—Falmers—Public Baths at Bally-street School | County Education Committee | J. H. Brearley, Architect, 68, Commercial-st., Bally | 27 |
| Leichfield—Whittington Barracks Sub-Post Office | County Education Committee | Johnson and Richards, Architects, Merthyr Tydfil | 27 |
| Sturford—New Head Post Office | County Education Committee | G. Dickens Lewis, County Architect, Aberystwyth | 27 |
| Emerton—Branch Library, Brookley-walk | County Education Committee | E. Cooper, F.R.I.B.A., 12, Gray's Inn-square, W.C. | 27 |
| Westminster, N.W.—Extending New Public Offices | County Education Committee | J. H. Brearley, Architect, 68, Commercial-st., Bally | 27 |
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| Cardigan—Additions to Schools | County Education Committee | County Education Committee | 27 |
| Ardsley—Cottages in Leighton | County Education Committee | County Education Committee | 27 |
| Faisy—Two Detached Villas in White Lee-road | County Education Committee | County Education Committee | 27 |

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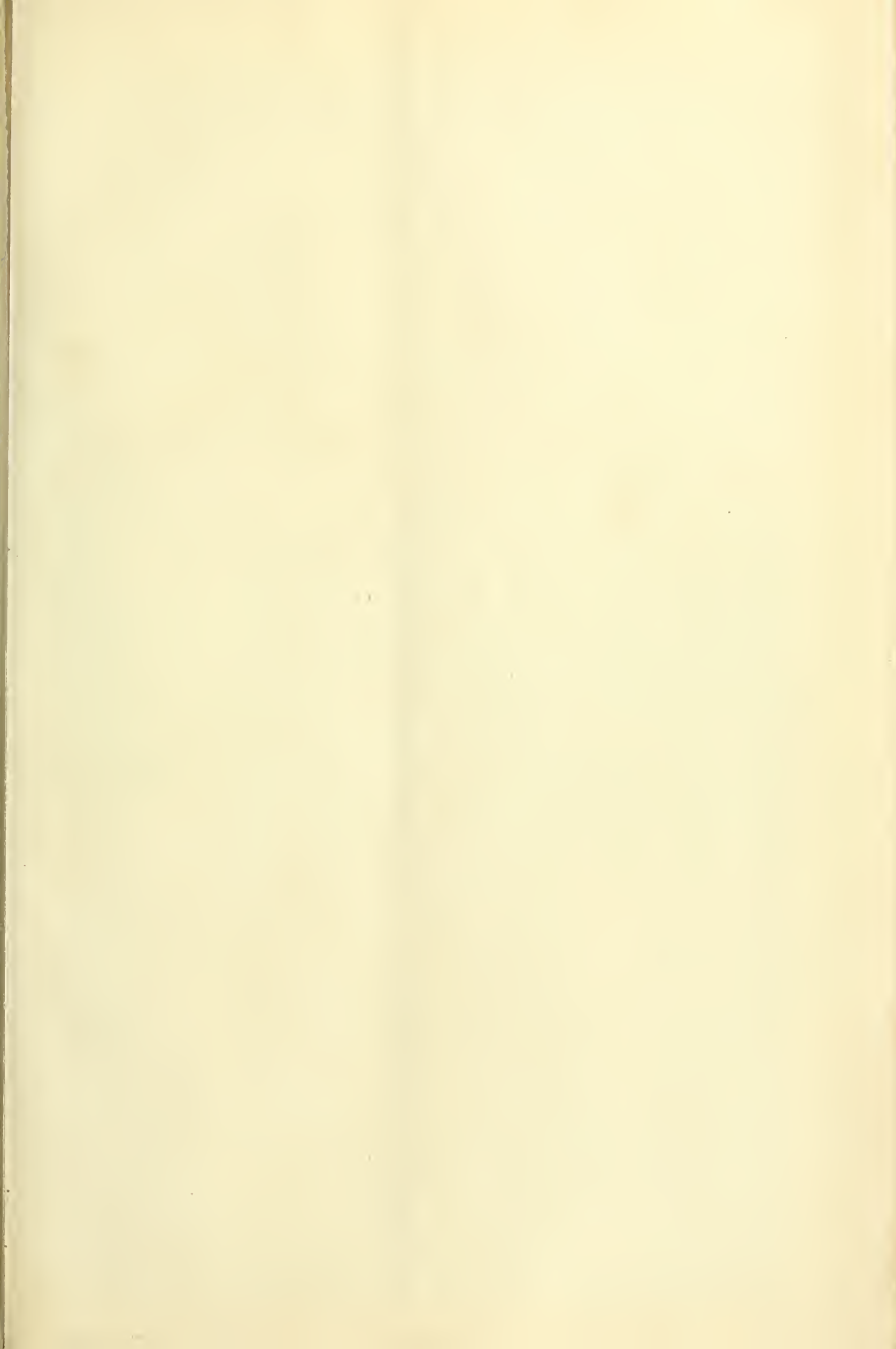
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Preparatory School, Bishop's Stortford College. Mr. H. Tiberian, F.R.I.B.A., Architect.
Golf Club House, Swinley Forest, Acot. Messrs. T. E. Colcott, F.R.I.B.A., and Stanley Haupp, A.R.I.B.A., Architects.
Great Horton Public Library, Bradford. Mr. Wm. Williamson, Licentiate R.I.B.A., Architect.
House at East Grinstead. View and plans. Mr. T. E. Colcott, F.R.I.B.A., Architect.
The Staircase, Crownwell House. By Mr. Fredk. Adeock.
Tomb of James McNeill Whistler, Chiswick Churchyard. Mr. Edward Godwin, Sculptor.
The Bacon Memorial Statue, Gray's Inn. Mr. H. W. Pomeroy, A.R.A., Sculptor.
Prize Design for a Row of Six Cottages. Mr. Alfred C. Hatell, Architect.
Brick Ornament.

THE LAND-VALUATION MUDDLE.

The debate on the 20th inst. in the House of Commons afforded an opportunity for the further exposure of the injustices, the anomalies, and the absurdities shown in the working out of the Land Taxes clauses of the Great Budget. One point, at least, was made very plain, and that was that the critics of the measure, and especially Mr. Prettyman, knew more about its meaning and its methods than did the Chancellor of the Exchequer himself, with all the aid he gets from expert advisers. That Mr. Lloyd George was quite aware of this, and of its publicity, was shown by his undertaking to set up a full inquiry by experts into the administration of the Land Valuation Office. This has been repeatedly promised; but now, under pressure of the Budget's growing unpopularity, it is likely to be performed. But it will be necessary that all who are interested in the result should watch the terms of reference, and the inquiry itself, so as to insure some real results beyond a more wordy and white-washing report. The crux of the whole matter turns upon the meaning of "site value," and no one knows what it means—least of all the Chancellor, who may be looked upon as the patron of the term, having taken over the theory from some unknown inventor. Probably the charm of the phrase is that it may be held to mean anything, and so be adapted to fit in with different facts and localities as questions of taxation arise.

There is, however, a deadly clearness about the official figures that it is hard to hide away in the mists of officialism. The estimated cost of the Land Valuation Office up to now comes out at the round total of £330,000. The amount derived from the land taxes during the same period as is covered by these expenses only reaches the small sum of £37,000. Was it worth while to waste all this public money to bring about such a beggarly return? But that is only one side of the matter; for it is also reckoned that the cost to owners of property arising out of this new valuation runs up to about a million a year. All this money is supposed to come out of wealthy landowners, and so, from a popular point of view, and at election times, it does not matter. But this is, of course, only another financial fallacy, for the losses brought about by this land legislation fall alike on rich and poor—only, they hit the poor so much the harder. This professional classes everywhere have felt the strain of the stoppage in dealings in land and houses. Archi-

ects, surveyors, auctioneers, agents, solicitors, contractors, builders, and all the building trades have alike had to suffer for this great scheme of land taxation, which has only wasted public money, depreciated private property, and done no good whatever to the nation or the community. To spend a pound in getting in a shilling as revenue seems the very madness of a frenzied finance. Yet, so far, that is about the net result of our Land Valuation Office. Certainly, a good many positions have been made for people—possibly deserving—who had formerly failed to do anything for themselves. The country has been covered with a network of jobbery, and our new official valuers have generally speaking become the laughing-stock of their profession.

The centre piece of the whole costly and amazing business is really the "site value." This is an abstraction, and reminds one rather of x in algebra as standing for the unknown quantity. More than this; for although an army of experts and officials have tried to work out the problem, it still remains as unknown as ever. There is no solution, and there never was meant to be. It is a sort of trick or trap, and any theorist can go on working round and round x as long as he likes, bringing out such results as he wishes, but cannot prove true. It is a sort of ideal that cannot be reached. No one ever bought or sold a "site value," or ever will. For practical purposes it is a mere figment.

Yet it is to be somehow made the very basis of a valuation of property upon which honest people are to be taxed for revenue purposes. These official valuations have been poured out upon the country in their thousands, and now the Chancellor says only a small number of claims based upon them are resisted. This is really too much like bluff, when we remember that ordinary folk could no more understand these amazing documents, with their varying values, than they could read a Sanscrit classic. These folk are not willing to incur expense over the yellow forms they receive, while as to resisting claims for increment duty that come in later, who is to fight a Government Department? Law is always a risky and a costly matter; but R-venue business is the worst of all. So people pay and pass on, thinking of other things, and perhaps of the next election. Nor is fighting a claim of much use, for the various decided cases have never been accepted as generally binding on valuers, and so can readily be distinguished where the facts slightly differ. The Government have so far refused to agree upon any test case.

although this is the only way by which some guiding principle can be laid down for practical use. It is to be hoped that during the coming inquiry something will be done to remedy this gross injustice, and to enable those who advise property owners to get some idea of the points that have to be proved or contested, for as present much of the fighting is in the air, and in the unknown.

It is a commonplace nowadays to sneer at speculative builders and to jeer at jerry-building. This is all very well and very easy in its way; but the growing populations of our towns must have suburban dwellings, and these are not likely to be built by any other method. Where municipal authorities do build for themselves, they often, if not usually, do so at a loss to the ratepayers, although the rents charged are high enough—and, in fact, too high—for poor people. The method of financing builders and crating ground-rents under the leasehold system may be one that is wasteful on economic theories; but at least it enables capitalists to put out their money, and it brings profits to various professions, besides enabling builders to earn a living and pay good wages to many workmen, to say nothing of keeping the various building trades prosperous. All these things are for the good of the community, and people get the houses they want, and at prices and rents they can pay. One effect of the land taxes has been to fill the country with broken builders, and to leave thousands of men out of work. By stopping the rate of house-building, it has also caused a scarcity, with the result of raising rents upon the poorer classes, and so adding to the gnawing cost of living. This is even being felt acutely in rural and agricultural districts also, where cottages are growing to be scarcer than ever. It is now reckoned that quite half the rent paid by a working man goes in rates and taxes, and the old theories about landlords' wealth, as well as in regards to builders' profits, sorely need revising.

It appears that there are now no fewer than 263 appeals against valuations awaiting hearing, and so it goes on. But the law's delay, though bad enough, is nothing to the law's uncertainty, and this it is which has kept the building trade down ever since the Budget passed. There have been decisions given against the valuers over and over again in particular cases, yet no general rule has been evolved that is widely applicable. The gaining of a victory on one specially absurd valuation is very little, if any, use in its application to another. It is said that all the valua-

land will be completed by 1915, though, at the present rate of progress, that looks very unlikely; and by that time, as they are based on the imaginary site value of the land in April, 1909, they will all want doing over again if they are to serve any practical purpose. It is a strange thing that agricultural and country land is always being valued much higher than its real worth, and urban land much lower. Can it be that the views of the Revenue officials bring about this curious general result? Land in the country is slow of changing owners; but in urban districts there is more movement. So the taxes would be charged upon the high assessments in agricultural places, and in towns and round about them the Revenue are ready to pounce upon the increment value, which is made up by some marvellous manipulation of the figures scattered about the valuation, and proceeds upon no fixed principle that has yet been defined or discovered. It may be said that the Land Valuation Office has come to stay, and so we must make the best of it. But, at least in a matter of taxation, we ought to have some definite decisions as to the meaning of the Act, from which practical rules for our guidance can be deduced. If we must look forward to paying increment duty, it is only fair finance to let us know on what basis of valuation it will be calculated. If some test cases could be brought before, and decided by, the Courts, then our surveyors and solicitors would know what they were, and be able to advise those who consult them with some degree of finality. In short, the whole thing is a muddle, and whatever may be our political views about the Chancellor of the Exchequer, it will generally be admitted that as a Minister of Finance his failure is made manifest. To spend some twenty times the sum produced in getting in these land taxes is bad business, however we regard it, and to ruin or reduce professional men and traders and workers, without doing any good to the community, is not only bad economically, but must, in the end, be bad also politically speaking.

THE ENCHANTED PENCIL.

I have always had a certain respect for my friend Jones, as he is not an architect, and when he called on me the other evening I was very glad to see him. He made himself quite comfortable, helped himself to something in the biggest glass available, and in his most ingratiating manner, said that he had come round to ask my advice.

"My boy," he said, as his eyes assumed a look of paternal pride, "wants to be an architect, and I should like him to become an architect. He is naturally artistic, as you know, and I believe it would be the very thing for him, just as I believe you are the very man to give me the best possible advice on such an important subject."

I smiled my acknowledgment at the more than implied compliment, and muttered something about my lack of knowledge and inability to advise with any semblance of authority. I knew, however, from experience that Jones was well able to extract from me such information as I could give him, whether I was particularly desirous of doing so or not, and I allowed him to proceed without entering any formal protest.

I must be prepared to favour of my own boy and his ability," he proceeded; "but I really believe that with a little luck he would be able to attain a proficiency which would place him at the summit of success and honour, and it would be a fine thing to think that a boy of mine was in a profession the mere practice of which would leave tangible proof of his ability and lead a name to his name and 'sincerely I, mine.' This name would be recorded as having worked up to the ideals of a noble profession, and he would be deserved as my son."

"Yes," I murmured, "but I lack there might be that in it."

And, continued Jones, enthusiastically, "he might not lead the way, and evolve new ideals, as well as new ideas. He might found a school of thought and a Jonesesque style. He may have the pencil of a second Wren in his pocket, and, if he has, the opportunity to use it will not be lacking. London must be looking for and longing for another Wren. The country would heap honours and opportunities upon him and make him a duke."

"Yes," I whispered. "If you son has luck he may have that pencil in one pocket and that dukedom in another."

"Ah," said Jones, regretfully, "not the dukedom; but he may have the pencil, and I have come to you to ask you to advise me as to the best way of finding out if he has got it."

"My dear Jones," I said, "that will not be easy, unless, indeed, a brief inquiry may show that the answer should be in the negative."

"Now, now," said Jones, "I said that I might be prejudiced in favour of the boy, and you must not think that I look on him as a heaven-born genius, although I may reasonably expect him to excel if he has the opportunity."

"Opportunity is just the difficulty," I replied. "The magic pencil is only to be found by opportunity. Your son may study for years, and show only average, or little more than average, ability; but opportunity may reveal the most transcendent genius. In any case, if any natural aptitude is shown, a prolonged trial should be given. Your boy should study architecture."

"Certainly," exclaimed Jones. "Where should he study, how long should he study, and how much will it cost?"

"There are several accepted methods of commencing the study of architecture," I replied. "He may go to an architectural school for a few years, and then be articled to a professional architect, or he may be articled and attend a school at the same time. He may simply be articled and study privately; but, to my mind, there is only one logical method. He must learn to build. He should enter a carpenter's shop for a year or so, and then a stonemason's yard. He should learn to make joints as well as draw them, to know the textures and limitations of his materials. He should watch a plumber wipe a joint—"

"A carpenter's shop!" interrupted Jones. "A stonemason's yard! A plumber's joint! I do not want my boy to become a tradesman or to associate with tradesmen."

"If your boy is ever to excel as an architect and an architectural designer," I continued, "he must have the craftsman's appreciation for the craftsman's work. He must sympathise with and understand every detail of the many trades on which the architect depends for a successful realisation of his design. Christopher Wren had brains, knowledge, and sympathy behind his pencil, and your son must strive to have a similar mind, knowledge, and sympathy, or leave the pencil to those who are worthy of any mention, thing which would, of its own volition, work harm to himself and others."

"It is very extraordinary," said Jones, "I do not see it, but I will take your word for it."

He took something else, in the big glass, as I continued:

"After a year or two spent in gaining preliminary practical knowledge, such as I have suggested, and attending evening classes in freehand and geometrical drawing, mechanics, and architectural history, it might be advisable to article your son to an architect, who would further advise him as to his studies."

"Geometrical drawing and mechanics!" said Jones. "Whatever for? The boy to be an engineer or an architect?"

"Both," I replied. "You introduced Sir Christopher Wren's name into this matter myself, and you could not have introduced a better. Wren was an accomplished mathematician and a Professor of Astronomy before he became an architect. Your son need not necessarily be a Professor of Astronomy to become an architect worthy of wearing Wren's mantle; but he certainly should have great width of view and a

breadth of technical knowledge as a basis for the success which you wish him to have. He should study dynamics and hydrostatics as a preliminary to the study of stresses and strains on building materials."

"But where does the Art of Architecture come in?" said Jones, peevishly.

"The architect to whom he is articled should advise your son as to his artistic studies. He should show him how all his own designs are evolved, and what they mean if they are to be anything at all. He should advise your son as to sketching, select the buildings to be sketched and measured, and give him certain opportunities for doing so. He should see that the drawings are careful and truthful studies, that they are depicted clearly and with understanding."

"Oh, yes," said Jones, "I can afford to article him to a good architect."

"But," I continued, "that will not necessarily mean that your son will become a good architect, nor will it necessarily mean that your son will become enamoured with the essentials necessary to make a good architect of him. It may only mean that for a few short years your son will have the advantage of seeing the world through the eyes of an opportunity of imitating them as best he can. He may learn to push a pencil with facility and accuracy; he may become a fair draughtsman; but he cannot become a good or a great architect unless he has that within him which will develop with study, a creative force within him which will impel him ever forward in the desire to do something better than he or anyone has ever done."

"But," said Jones, "how long would my son have to study?"

"His whole life long," I replied. "Any architect worthy of the name remains a student so long as life is his. It is necessarily so. The true architect lives to find an ever-elusive perfection, and your son may find his life long enough for the use of that enchanted pencil when he finds it."

"But if my son studies and makes his profession his hobby, as you suggest," said Jones, "how soon is he likely to be able to maintain himself creditably by his own exertions?"

"That is a question I am unable to answer," I replied. "Your son might not be really self-supporting and have an assured future for fifteen or twenty years to come, unless he has great natural aptitude as well as social advantages, which will bring him a satisfactory clientele, unless, of course, he enters some Government or municipal office, which will give him a small but assured income."

"Fifteen or twenty years!" exclaimed Jones. "A Government or municipal office after such a prolonged and expensive training! It would be cheaper and better to send my boy to the Bar!"

"Undoubtedly," I said; "provided that your son is fitted for the Bar. You must understand that the architectural profession is probably the most competitive of all the professions."

"I can quite understand that," said Jones; "but in a high-class profession like architecture it would be fair and gentlemanly competition where worth alone would tell, and my son would only have to compete against gentlemen who had been trained in a similar way to himself. Competition would be the best thing for him. It would make him work and spur him on to genuine exertion and desire to excel."

"My dear Jones," I said, "you are about to retire from your own comfortable Government office, and I can assure you that if you think it would help your son, you can open an office on your own behalf, put up your plate, and practise as an architect. No one will interfere with your work. Assistants will readily do your work for you until you pick up sufficient architectural knowledge to run the place yourself. All you will have to do will be to persuade people that you know something that they do not know themselves, and they will give work to you in preference to a trained architect who cannot help letting people know how very little they do know themselves. You may even find that enchanted pencil in your own pocket and hand it over to your son. His name is yours,

and you will share the honour. If you do not find that special pencil, you will still find it very easy to design the house which your client wants—build it to your client's design, and nobody will grumble, unless it is the client himself."

"Whatever do you mean?" said Jones. "I came to ask your advice, not to be insulted."

"I am perfectly in earnest," I replied, "and I can hardly see how my advice as to your entering what you consider a high-class profession can be considered an insult."

"I do not understand you," exclaimed Jones. "Do you seriously tell me that my son, after being trained and article'd, would only have his own training and merit to distinguish him from anyone who chose to describe himself as an architect?"

"I do," I said. "This very morning a one-eyed, third-rate speculative builder, weighed down by years and quite unconscious of his past and present delinquencies, calmly informed me that he had joined my profession, and tendered me a card in evidence of the change."

"Never!" gasped Jones.

"Yes," I said; "but there is one great extenuating circumstance in his case. I am the last person to suggest that a man with one eye is only half as good as a man with two eyes. He may be much better; but this particular individual is half-blind in the one eye he has left, and fortunately has been quite unable to see what he has been building for many years. The same applies to any designs he may now produce; but, for all I know, he may have that pencil you covet for your son."

"Never mind that pencil," said Jones, savagely. "If I take what you say seriously I should immediately try to wean my boy from all his architectural aspirations, and choke his artistic feeling before it develops."

"Don't be so precipitate," I said. "In a contemplative fashion, and a tranquil state of mind, free from every kind of passion, some solution you will find. Let your boy remain at college for another year or two. Let him graduate in arts, and, in the meantime, come and see me again and thrash the matter out. There is a proposal to close the profession to all but qualified architects, and something may come of it. By the way, have you seen Smith lately?"

I had less respect for Jones when he left than I had on his arrival. He had insulted me throughout the conversation, unintentionally, perhaps, but that only made his offence the greater, and his lack of perception the more apparent. He knew that I had been an architect for forty years, and that a very lean portion was mine. He ought to have known that a replica of the enlabeled pencil was in my own pocket, and that opportunities and honours had passed me by.

Jones had put his dream into words. With a father's high opinion of the capabilities of his own offspring, he had delineated his son's destiny, and, in doing so, had in no uncertain manner suggested that his son's capabilities were of a very different type to those of the person whose advice he was asking. He had implied that with forty years' experience his son would attain to an eminence which was certainly not mine. It was apparent to me that Jones must be looking further than his own personality for any hereditary merit which he believed his son to have. Jones had not in any way suggested that his son should be article'd to me. Had he only done so and touched the matter of a premium, however lightly, it is possible that my statement of fact might have been influenced in a manner more to his satisfaction. H. GUTHRIE TODD.

BRICK ORNAMENT.—IX. PARAPET-WALLING.

The parapet-wall as adapted to the tops of various structures is one which requires some consideration. It is a position where the various forms of brick ornament can be used in a simple and restrained manner with a large amount of effect. A little decoration

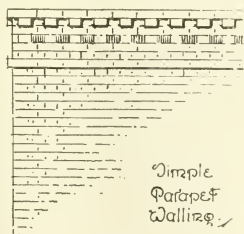


FIG. 1.

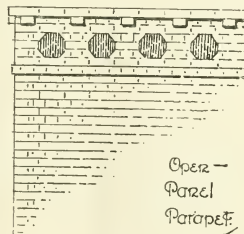


FIG. 2.

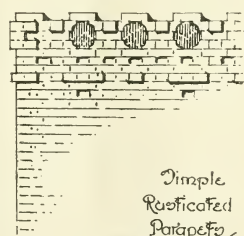


FIG. 3.

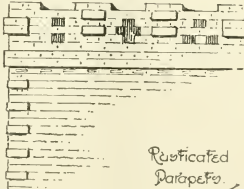


FIG. 4.

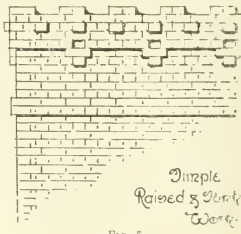


FIG. 5.

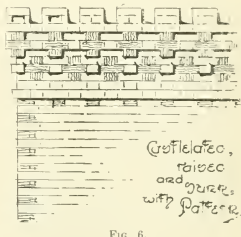


FIG. 6.



FIG. 7.

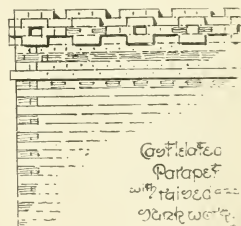


FIG. 8.

so applied would prove less expensive, in many instances, than a cornice, where the latter class of work might have to be omitted on this account. Some of the simplest work in this direction has a good amount of picturesque effect, even with plain-brick dentil courses and perforated leaders, as shown by Fig. 1, or the larger openwork panels, as shown by Fig. 2, formed with the splay brick. Rusticated work is another form which gives good results when so applied, somewhat after the style illustrated in previous articles, or as shown by Figs. 3, 4, and 5. The succeeding two examples, Nos. 6 and 7, illustrate further slight elaborations with raised and sunk broken lines combined

with pattern and half-banded work. The latter, here used in contrast to the projecting portion, gives a more pleasing feeling of the pattern being slightly sunken and face. It has not, therefore, as much of a hard effect as a wholly plain surface, and at the same time it is relieved by the stronger than simple surface pattern, a method which might be suitably developed with other work. The ornament of the single and double lines and the relief of a similar character, used to form effective features in the parapet work shown by Figs. 8 and 9. Some instances of plain banding with raised and sunk work, combined with pattern, are shown in

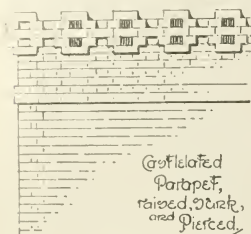


FIG. 9.

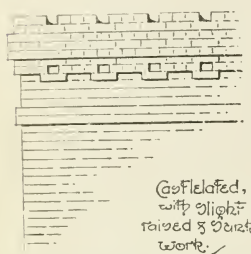


FIG. 10.

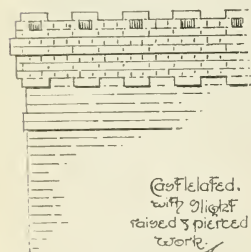


FIG. 11.

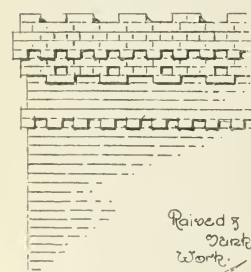


FIG. 12.

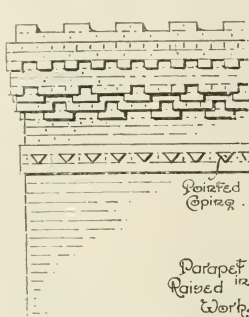


FIG. 13.

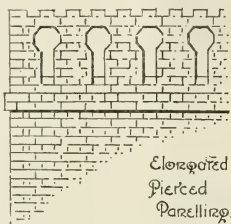


FIG. 14.

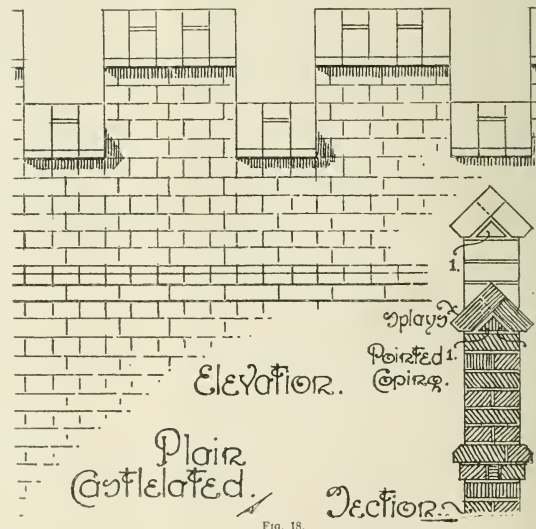


FIG. 15.

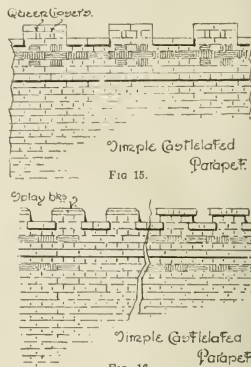


FIG. 16.

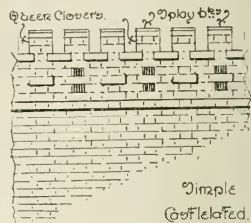
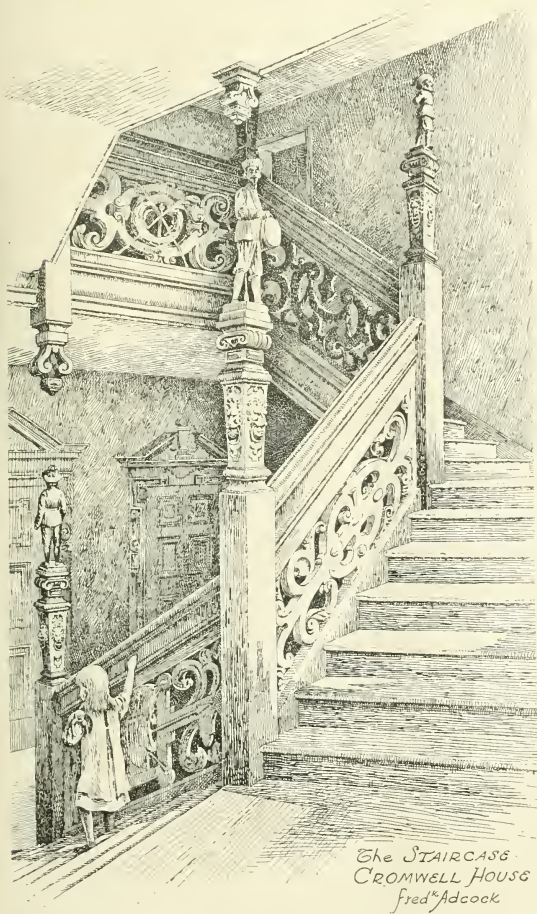


FIG. 17.

brick work, as illustrated by Figs. 10 and 11, produce some very pleasing results. Further decoration can be added by the inclusion of extra dentil bands, as shown by Fig. 12, which affords a more enriched appearance. Overlapping courses in good combination with other members, or a little inverted coping relief, as illustrated by

Fig. 13, is productive of some really nice work. The following illustrations Nos. 14 to 17 show various forms of pierced and castellated walling, either in the regular bonding, or with slight variations in the top

courses to avoid cutting. Quite a good design can be produced in this style, with projecting weather-capped courses, by means of the inverted play brick, as illustrated by Fig. 18. A little cutting is required by the



*The STAIRCASE.
CROMWELL HOUSE
Highgate
Fred Adcock*

alternate tie in bricks; but a great deal can be avoided inside by the use of pointed coping bricks, as shown by the section. Although this style is seldom used in modern work, embattled parapets, etc., with their Medieval air, still form one of the most picturesque methods of architectural treatment. W. G. KERBY, Architect.

STAIRCASE, CROMWELL HOUSE, HIGHGATE.

This famous staircase in Cromwell House, once the home of General Ireton and of Bridget, his wife, eldest daughter of Oliver Cromwell, is likely to be removed to America, if credence is to be given to current reports. Besides the staircase, of which we give a sketch by Mr. Fredk. Adcock, of Hampstead, made quite recently, the house contains some very fine oak panelling, at present buried under the accumulation of old paint during centuries. Prickett, in his

"History of Highgate," says Cromwell House was erected in 1630 by the Protector, and the figures on the staircase were supposed to represent persons in General Ireton's army, while emblems of war are introduced in parts of the design. The ceiling of the drawing-room has his arms incorporated in ornaments of the period. The Middlesex County Council have numbered Cromwell House in their list of "Historic Buildings" which ought to be preserved. The grounds are over an acre in extent.

Morpeth Rural District Council have resolved to ask the Local Government Board for leave to drain the scheme for the Chevington portion of their district.

The new chapel which is being added to Gresham's Grammar School at Holt, Norfolk, in commemoration of the 350th anniversary of that institution is being built from plans by Mr. J. W. Simpson, F.R.I.B.A., of London, and will cost about £5,000.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

There was a numerous attendance of members and visitors, including many ladies, at the closing meeting for the present session of the Royal Institute of British Architects, the attractions being two presentations—that of the Royal Gold Medal to Mr. Basil Champneys, and of Mr. Orpen's portrait of Mr. Leonard Stokes, whose 50 years' term of office is about to expire. In the Institute Mr. Stokes occupied the chair, and among those present were Sir Aston and Lady Webb, Sir Ernest and Lady George, and Mr. T. G. Jackson, R.A.; and the incoming President, Sir Reginald Blomfield, A.R.A. Along upon the walls of the meeting room was a large series of photographs and some working drawings of buildings executed from Mr. Champneys's designs.

Mr. H. T. Hare, Hon. Secretary, announced the decease of four members—Mr. Edmund James Minter Allen, Associate since 1882; Mr. Lewis Angell, elected a Fellow in 1864, who was placed on the list of retired Fellows in 1902; Mr. Albert Edward Twells, Licentiate since 1911; and Mr. William Edmund Wallis, Associate since 1882.

The President said those who desired to become Fellows of the Institute were usually admitted by a slow and complicated process, after examination, but on certain rare occasions the Council exercised the power they possessed to nominate for direct election architects of unusual distinction. Such an opportunity had now presented itself in the person of an architect bearing in the third generation the distinguished name of George Gilbert Scott. His grandfather was Sir George Gilbert Scott, a former President of that Institute; his father, the late Mr. George Gilbert Scott; and he now had the privilege of proposing from the chair that Mr. George Gilbert Scott, the architect of the new cathedral at Liverpool, which of the section already built, exhibited very fine qualities, be elected as a Fellow.

The motion was unanimously agreed to amidst hearty applause.

PRESENTATION OF THE ROYAL GOLD MEDAL.

The President continued:

We meet to-night, as you know, to do honour to our very distinguished colleague, Basil Champneys, by handing him the Royal Gold Medal which, on our recommendation, has been conferred upon him by our Royal Patron and King George V. The Royal Gold Medal is the highest honour—architecturally speaking—that can be bestowed upon a member of our profession, and we have only to recall the names of former recipients to find that they belong to men who, if alive, are honoured, respected, and admired by all of us; or, if dead, are acknowledged to have been the great men of the age they lived and worked in, and it is only necessary to mention such names as Cockerell, Barry, Donaldson, Smirke, Tice, Owen Jones, Scott, Ferguson, Street, Sharpe, Penrose, Butterfield, and Bodley, as amongst these so honoured by their sovereign to prove the statement of proof is necessary.

In 1848 Queen Victoria, who had about ten years previously graciously consented to become Patron of our Institute, resolved to grant and confer annually, at the recommendation of the Institute, a Royal Gold Medal for the promotion of architecture. This medal was awarded in that year to C. R. Cockerell, and the award has been made without interruption in each succeeding year—except in the year in which Queen Victoria died—to some distinguished man; not always an architect, as we readily admit that there are others who by their works can and do promote architecture—for example, literary men, who by their books and pens greatly advance the cause we have all so much at heart, and they have on several occasions received this medal. Again, the recipient need not be an Englishman; Italians, Austrians, Frenchmen, Germans, Dutchmen, and Americans have all received the medal. So far, however, it has not gone to an inhabitant of one of our great colonies,

and this excellent work is not being done in the same degree because they are mostly of a less extent and so far off, that we in this city have not been able to get sufficient material on to enable us to submit the names of the Council of our Sovereign, not to mention the fact now that travel is getting easier, easier, and inter-communication more complete, that it may not be long before the same will go to one of the great Dominions beyond the seas.

And when we turn to the gentleman upon whom this has been bestowed his Gracious Majesty has not meant this year. Though not a member of the Institute, and consequently not present as often seen in this room as we could have seen Basil Champneys, at any rate his name is well known to all of us; and these few memories can carry them back, day after day, a century or more, with one of our great men, that his distinguished career has been followed throughout with interest and admiration, and that the honour most justly bestowed upon him, backed up as it is by the unanimous vote of this Institute, and endorsed by the King, is but a well-merited distinction added to a brilliant though somewhat static career.

Basil Champneys is the son of William Wilkes Champneys, Dean of Lichfield, and was born in 1842. He was educated at Charterhouse—where he was a Foundation Scholar—and Gold Medallist—and Trinity College, Cambridge, where he took an honours degree in Classics. He studied architecture under the late John Pritchard, of Llandudno, and began practice in 1867, and has kindly read papers before this Institute on more than one occasion. Some of his works are inscribed on the walls to-night, and it is naturally to his executed works that we turn when thinking of him as an architect, and to his published works when thinking of him as an author. Fortunately for us he has done a great deal of work both at Oxford and Cambridge which is easily accessible.

At Oxford we find: The Indian Institute; the Robinson Tower and new buildings at New College; Mansfield College is not only a fine specimen of collected work, but the design is one man, and this is consequently perhaps one of Mr. Champneys's best-known works, and it always receives the admiration it so justly deserves; new Quadrangle and Warden's House at Merton College; and new buildings for Oriel College—one of his most recent works. At Cambridge: The Library and Library School, and the buildings of Newham College. Other public buildings of a collegiate character may be seen at Bedford, where we find the Harpur Girls' Schools and Grammar School buildings in the Square; and at Harrow, where are the Butler Museum and new Classrooms. Also at Winchester we find the Quadrangular Museum; at King's Lynn, the Grammar School; and in Regent's Park, the Bedford College buildings (now in course of erection). Again, at Manchester we may see one of Mr. Champneys's perhaps largest works—viz., the John Rylands Library, and also the red-roofed Victoria Pier, library and vestries at the Cathedral. Amongst churches erected from his designs are: St. Luke's, Kentish Town; St. Peter's, Brompton; St. Mary's, St. Mary's, St. Augustine's, St. Luke's, West Hampstead; St. Andrew's, St. Michael, East Greenwich, etc. And houses: Banacre Edge, Willey; Cromer, Wood, Matfield, Kent; and St. Bride's, Vantage, Fleet-street, etc., etc. Of course, this list might be very much amplified, but enough examples have been given to show the varied character of his work, and to prove the universal excellence of all the work from the hand of Basil Champneys. As limited just now, Mr. Champneys besides being a distinguished architect, is also well known as a writer, possessing genuine literary power—a gift, unfortunately for us, not by any means common amongst architects. Books are produced in such numbers that there are very many which can really write and publish, and we find one who, as Basil Champneys, we should like him to feel that he is aware of the fact, and much

appreciate his powers. Anyone who has read his "A Quiet Corner of England," which dealt with that delightful district round Rye, Winchelsea, and Romney Marsh, written thirty or forty years ago in a pleasant leisurely way, with an appreciation of the 18th-century vernacular rare in those days, will agree that it is an admirable little work. He has also written on William of Wykeham; but, no doubt, his best-known work—and probably, too, the best thing he has ever done—is his "Life of Coventry Patmore," which appeared in two stout volumes in 1900, and in it is as a masterpiece in biography, written with fastidious precision and a sympathetic appreciation of his subject. This book alone is enough to make a reputation, and with these great gifts, and being so widely read, and knowing his way about so really well—if the expression can be forgiven—it makes one almost regret—if one is allowed to get so near a regret on an occasion like this—that he has applied himself more to the critical treatment of architecture in his writings. It only remains for us now to hand the medal to Mr. Champneys, with the earnest hope that he may live for many years to wear it, and that while he wears it he will remember that his Sovereign, in bestowing this well-merited token of his Royal approval on him, did so on the unanimous recommendation of the members of this Institute, who one and all have the greatest admiration for the work and character of Basil Champneys.

The President then, amid hearty and long-sustained cheering, proceeded to move to Mr. Champneys with the blue ribbon which is attached the Royal Gold Medal.

In his response, Mr. Champneys, who spoke in a most melodious and pleasant tone, said:—I must thank the President for the very kind and appreciative words he has spoken of my career and work, and express my sincere gratification at the great and distinguished honour which the Institute has conferred on me. That this recognition should have been paid to me, an outsider, carries with it a satisfaction not altogether dissimilar to that which is felt in having been employed so far more frequently at Oxford than at Cambridge, my own Alma Mater; nor can I fail to recognise the generosity implied in the award. This tribute on the part of the Institute is, in fact, but a more conspicuous mark of the courtesy and consideration I have always received from that body, and to which I have responded to the best of my ability. The President's kind words are, it is indeed necessary if it be only to offer opportunities and to "bring grist to the mill"—no artist can fail to attach an altogether predominant value to the judgment of those who are actually versed in the practice of his own art. An occasion like the present seems to justify a brief retrospect of the phases and tendencies which have been manifest during the period of much less than half a century which I have spent in the study and practice of architecture, and a still briefer anticipation of the problems which must present themselves in the future. I may claim to figure as an old soldier in the army of artistic endeavour, "jam rude donatus," presented with the emblem of warfare accompanied with much less than half a century. I regard the medal not as a symbol of retirement, but as an encouragement to future effort; at any rate so far "emeritus" as to have the right of passing in review the battles which have been fought in my day, disclaiming at the same time any such preponderant part in them as was exercised by "Bill Adams" at the Battle of Waterloo. When architectural studies were conceived Gothic was in its heyday of popularity. It was nurtured in the strictest school of the Platonists, whose dogma was: "No salvation out of the Thirteenth Century." It is true

that even within the limits of this rigid and exclusive school there were divergent tendencies. Ruskin was using the influence of his unrivalled eloquence towards the adoption of Italian examples, while others advocated French characteristics. There seemed a danger that the lessons of our national Gothic might be neglected. It seemed, too, as though an exclusive preference were often associated with an imperfect comprehension. The Genius of Gothic architecture must often have wondered at the fruit engraffed on it: "Miratus non sua poma." It is indeed worth remarking that the most complete and scholarly studies of mediæval architecture have been produced since the vogue of the style has passed. The measure of exclusiveness was the ruthless fervour which consumed all which failed to conform to a Procrustean standard: the measure of ignorance was the misunderstanding of many important principles and precedents; the result of the two combined was the ruin of many of the most valuable monuments of the very style which was the object of adoration. An antidote to, or at least a palliative of some of these imperfections was the work of Butterfield, which showed a true insight into the essential spirit of Gothic architecture: I can recall the overpowering impression of a new revelation, which all Saints' Road, West-coast, made on me in my school days; such insight was combined with strong and original creative power; while Bodley, with somewhat dissimilar endowments, was beginning to demonstrate the potentialities of purely English style. Meanwhile a rather later school was resuscitating the latest phases of Gothic, showing the capabilities of half-finished work in domestic architecture. The fifteenth century, our one specially English style, in ecclesiastical building. The original orthodoxy had been shaken, discredited partly by the abuse of precedents, partly by its inadaptability to modern uses, partly, perhaps by a sense of the monotony in the mind of the public of "toujours perdris"; and the way was open for new tendencies to creep in. The styles of the French Countries, the English work of the sixteenth, seventeenth, and eighteenth centuries, the French Renaissance—all found their advocates; while these in turn appear, so far at least as secular building is concerned, to be yielding to a more correct and scholarly study of Classical examples; so that in my own time fashion seems to have come full circle, apparently fruited, but which may, nevertheless, have led to an increased insight into the principles which underlie all phases of art; nor is there need to regret the tendencies of the present. These are not indeed surprising, seeing that the classical spirit seems less remote from our ideas and civilisation than that of the Middle Ages; and if exclusiveness of appreciation and of purpose is a condition favourable if not essential to the welfare of art. There are, however, certain problems already presented to architecture which must severely tax ingenuity and invention in the immediate future. Our art has been defined as that which "makes construction beautiful"; but commercial considerations, leading to the extensive use of a method by which metal construction is clothed with an external facing practically independent of it. In the absence of any organic relation between structure and external appearance, it is hard to see how the principle of this definition can be complied with. Similar influences dictate that the ground plan, and of commercial, a majority of town buildings, must show an unbroken expanse of glass; but a superstructure apparently carried on an unsubstantial material can scarcely fulfil the primary conditions of architectural integrity. I have mentioned these problems not with any view of suggesting their solution. Indeed, I have quite a congenial myself that I have been quit of them so far, and may leave them to others—but recognising that they have to be reckoned with by a younger generation unless a large proportion of necessary buildings are to be

With regard to the best method of giving effect to the views of the conference it was resolved to recommend to the main committee that those invited to attend the con-



TOMB OF JAMES MCNEILL WHISTLER, CHISWICK CHURCHYARD.
Mr. EDWARD GODWIN, Sculptor.

ference be formed into a sectional committee to deal with the subject, with power to add to their numbers.

It was understood that the sectional committee would have power to form sub-committees and to co-opt members having expert knowledge of the particular branch of the subject to be dealt with.

Dr. W. Cawthorne Unwin, President of

the Institution of Civil Engineers, proposed a vote of thanks to Sir John Wolfe Barry for presiding at the conference, which was seconded and carried with applause.

Among woodworkers there is a general belief that no other wood as hard as birch can be worked with so little wear of the tools.

TOMB OF JAMES MCNEILL WHISTLER, CHISWICK CHURCHYARD.

Hogarth's tomb, erected soon after his death on the south side of the parish church, has long made Chiswick Graveyard famous, and now the monument just completed in memory of James McNeill Whistler, nine years after his death, will further add to the interest of

this prettily-situated and well secluded cemetery midst the trees hard by the banks of the Thames. The grave of Whistler is not far from the vault of Philip Louthenbourg, R.A., who died in 1812, his tomb being rather a good one in the taste of that period. Whistler's grave has always been well garnished with flowers. His monument now put up is in bronze, the base being in granite. It was designed by Mr. Edward Galwin, sculptor, of Chelsea. The inscription reads "Sacred to the Memory of James McNeill Whistler, MDCCCXXXIV. MCMIII. and of Beatrice, his wife, MDCCCLVII. MDCCCXCVI. The place where I also at last hope to be hidden, for in no other would I be." For years Whistler lived in Chelsea, where Edward W. Godwin, F.S.A., the well known architect, and frequent contributor to these pages, built him a house in Tite-street, close to the river. The beauties of Whistler's marvellous little etchings of the Thames below "the Pool" and elsewhere, are undoubtedly among the best productions of his facile skill, and as a simple etching printer he was facile princeps. It was wonderful to see how dexterously he graduated and softened the ink upon his plates with the palm of his hand. He etched indefatigably out of doors in all weathers, and often with the copper plate on which he worked as cold as ice in his hand. The portraits of his mother and of Carlyle will eter rank with the masterpieces of modern British art, whatever may be thought of his "nocturns," which Ruskin declaimed against. His love for posing in Society, and his reputation as a keen fighter, mostly actuated as he was by caprice and singularity, were the least admirable traits of his character. When in Venice, after his bankruptcy, he was in very straitened circumstances, and endured many hardships. His old hat being badly torn, a kindly friend, stitched up the rent, but Whistler ripped it open again, saying, "A darn is premeditated poverty, but a tear is the accident of a moment." A hackneyed sentiment, but one, perhaps, not incomprehensible by nobler minds.

THE BACON MEMORIAL STATUE, GRAY'S INN.

This beautiful statue, by Mr. F. W. Pomeroy, A.R.A., adds a real work of art to the none too numerous ones of its kind in the Metropolis, and Mr. Balfour unveiled the monument yesterday. The figure is in bronze, 6ft. 6in. high. The pedestal is in Portland stone, 6ft. tall. Francis Bacon, Lord Verulam of St. Albans, was born in 1561 and died in 1626. The statue was exhibited at the Royal Academy last year, and represents Bacon in his robes as Lord Chancellor, holding in his left hand the star containing the Great Seal. The monument stands at the east end of the lawn in South-square.

THE LONDON COUNTY COUNCIL.

At the meeting on Tuesday of the London County Council a report was received from the Local Government Committee, recommending that the present site at Newington be utilised for a new building to accommodate the London Sessions. The Committee pointed out that very few sites in the central districts are available, and that the cost would be not less than £250,000 capital expenditure. They were not satisfied that the advantages would be commensurate with the heavy cost, and stated that it appeared to them that the objections made to Newington on the ground of its situation had been somewhat overrated, and were counterbalanced by other considerations. The cost of erecting a new courthouse at Newington is estimated at £100,000. This is based on the assumption that the new building will be erected under the supervision of the Council's architect, who has considered the site from the point of view of architectural treatment, and prepared sketch plans of a new courthouse thereon, which have been provisionally approved by the Standing Joint Committee and the Commissioners of

Prisons. The Theatres and Music-Halls Committee recommended the Council to approve plans by Messrs. Wylton and Long for the reconstruction of the Tivoli Music Hall, Strand, with seating accommodation for 1,530 persons, provided that the work

schools, and the enlargement of four elementary schools. The total additional accommodation thus provided will amount to 3,633 places, at an estimated cost of £147,239. Five schools are being structurally improved by the provision of halls, etc., at a cost of



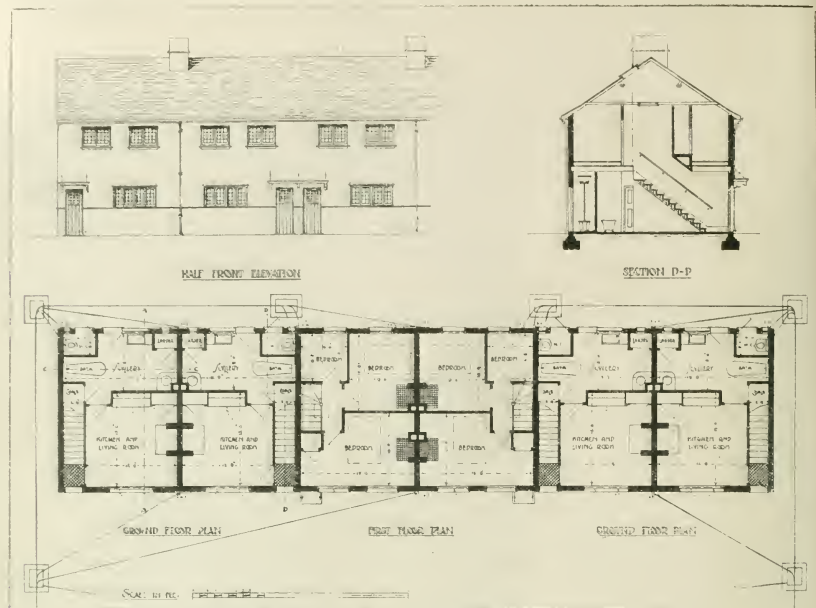
THE BACON MEMORIAL STATUE. GRAY'S INN.

Mr. F. W. POMEROY, A.R.A., Sculptor.

begun within six months and certain conditions are complied with.

The Education Committee, in their half-yearly report, stated that work is proceeding in connection with the erection of two new central schools and four new secondary

£52,151, and four schools are being rebuilt at a cost of £38,197. The erection of new premises for the School of Photo Engraving and Lithography in Bolt-court, Fleet-street, and the enlargement of the Camberwell School of Arts and Crafts, in Peckham road,



PRIZE DESIGN FOR ROW OF SIX COTTAGES BY MR. ALFRED C. HAFPELL.

are in progress, the amount of the accepted tenders being £15,913 and £17,199 respectively. Two domestic economy centres are in course of erection, and three special schools are being enlarged, the total estimated cost of the work, exclusive of that of Hoxton House, being £10,365. The Tramways Committee, in their report, mentioned that the system in operation on April 1, 1911, included about 126 miles of electric tramways, and during the year a further length of about six miles was opened, making a total of about 132 miles. The lines opened during the year include the new tramways from High-street, Deptford, to Greenwich Church (except on Creek Bridge); from Battersea Park road to King's-road, Chelsea; and from Putney Bridge to High-street, Wandsworth; and the reconstructed tramways from Rainford-road to Chapel-street, Woolwich; from Rotherhithe New-road to High-street, Deptford; and in Highgate-road.

PRIZE DESIGN FOR A ROW OF SIX LABOURERS' COTTAGES.

This was one of the competitive subjects set for craftsmen, or those actually engaged in any of the arts connected with building, the conditions being that the cost of the entire row was not to exceed the sum of £1,000. A large number competed for this particular subject, and the first prize of £50 was awarded to the accompanying design, of which we have reproduced part of the drawings. In the opinion of the judges, however, the roof should have been a little steeper, and the roughcast should have been continued down to the ground level. Assuming the cost of construction 44s. per cubic foot, this allows a gross of 54,000 cubic feet the total cost of 2,418, leaving £51 for drainage, etc., by making the roof steeper, the superficial area much less, and thus to keep it within

the cost. The specification provided for red-brick facings to window-sill height, the upper portion to be built of local bricks covered with roughcast; window-sills and string-course of double-tile creasing, bedded and pointed in cement; plain sand-faced tiling to roof surfaces, laid to 4in. gauge; 14in. yellow deal, straight-pattern flooring on ground floor to 3in. by 3in. double-splayed fillets let into the surface concrete; the scullery floor of red paving-tile set in cement. The assessors of this competition were Messrs. John Willson, J.P., Maurice H. Pocock, J. W. Pomeroy, A.R.A., C. F. A. Voysey, and H. Phillips Fletcher, F.R.I.B.A. The author of the design is Mr. A. C. Haffell, of Acton, W.

THE RECONSTITUTED BRITISH SCHOOL AT ROME.

The first meeting of the Council of the British School at Rome, which has been reconstituted by Royal Charter, was held at St. James's Palace on Monday, Prince Arthur of Connaught, the President, being in the chair. The following members of the Council were present: Lord Beauchamp, Mr. Reginald Blomfield, A.R.A., President-elect R.I.B.A.; Sir Thomas Brock, R.A.; Mr. J. J. Burnet, R.S.A.; Mr. E. K. Chambers, Mr. George Clausen, R.A.; Lord Esher, Sir George Frampton, R.A.; Mr. Lewis Harcourt, Sir Charles Holroyd, Sir F. G. Kenyon, Mr. T. Stirling Lee, Mr. Dermot O'Brien, Mr. F. G. Ogilvie, Professor J. S. Reid, Mr. J. S. Sargent, R.A.; Mr. J. W. Simpson, F.R.I.B.A.; Mr. Arthur H. Smith, Sir Cecil Smith, Sir Aston Webb, R.A., C.B.E.; and also Mr. Evelyn Shaw, acting secretary.

Prince Arthur said Lord Esher and the organizers of the new school had acted with such judgment and despatch that within a year of the initiation of the scheme they were holding their first constitutional meeting.

Viscount Esher outlined the present

position of affairs. As a first stage in the construction of the new buildings, the Commissioners had undertaken to rebuild in permanent material, at a cost of about £15,000, the temporary structure of the existing pavilion, the facade of which, from a beautiful design by Mr. E. L. Lutyens, had been much admired in Rome, and to adapt the building so as to make it immediately serviceable for art students. An anonymous donor had presented the sum of £10,000, which was to be devoted to endowment purposes, and other gifts had also been received. Until it became possible to proceed with the erection and endowment of the hostel, the Faculty of Archaeology, History, and Letters (the old British School at Rome) would remain in its present quarters, and would carry on its excellent work as heretofore, being transferred to the new building on its completion. The Council were asked to appoint Dr. Thomas Ashby, the director of the old school, to be the director of the British School at Rome; Mr. Evelyn Shaw, secretary to the Royal Commissioners for the Exhibition of 1891, to be honorary general secretary; Messrs. Fladgate and Co. to be honorary solicitors; and Messrs. Deloitte, Plender, Griffiths, and Co. to be honorary auditors. The Commissioners were allowing their office to be used in the meantime as the headquarters of the school in London. They were also asked to pass resolutions authorising the Executive Committee of the school to make arrangements for the conduct of the general affairs of the school, and accepting the generous offer of the Commissioners to establish in connection with the school annual scholarships in architecture, sculpture, and decorative painting, schemes for the award and tenure of which were to be prepared by the respective faculties for the approval of the Commissioners.

These resolutions were moved from the chair and carried, and the Council adjourned.

CORRENTE CALAMO.

Mr. Leonard Stokes on Monday night briefly, but very admirably, summarised the dual claims of Mr. Basil Champneys to the Gold Medal, the award of which has evoked such universal approval. Mr. Basil Champneys' work as an architect has many times been appreciated by our readers. We wish they had oftener enjoyed the fine quality of his work as an author. Mr. Leonard Stokes said on Monday night there are very few architects nowadays who can really write. That is true, unfortunately. Literary power and sympathetic appreciation of subject are gifts that the orator or writer cannot command, however diligently he may study rhetoric or syntax. Mr. Basil Champneys probably inherits both from his distinguished father, whose sermons reached the hearts of his hearers at St. Paul's so powerfully in the mid-Victorian days. We remember more than half a century ago it fell to (then) Canon Champneys' lot to make a presentation on behalf of his parishioners to a brother London clergyman, and the magical transformation of the tone of the assembly from that of decorous approval to eager interest, which a few sympathetic reminiscences effected, and the genuine pathos of the response of the recipient that they evoked.

Anyhow, Mr. Basil Champneys has used his gifts well, and mindful, perhaps, that the Greeks—the world's masters in Art and song—derived the poet's name from the word to make, has not left us altogether, as Hardy and Hall Caine did, for letters. If our regrets, as Mr. Leonard Stokes did, that one new Gold Medallist has not applied himself more to the critical treatment of architecture in his writings, it is because his excellently-phrased summary on Monday night of the problems of architecture which must severely tax ingenuity and invention in the immediate future, indicated beyond all question his ability to suggest their solution, although—perhaps because—he himself "has been quit of them so far." A master of his art owes it to the rest of us to do more than "hope" that our necessary buildings are not to be permanently banished from its legitimate domain by metal construction clothed with an external facing entirely independent of it.

Last week we announced the awards of the prizes for the year at the Architectural Association, and, chief amongst them, "the Association Silver Medal and £10 10s.; the subject of this competition being a design for the treatment of the Gardens End Head of 'The Serpentine,' Kensington." Mr. R. M. Pigott, of Wandsworth, won the medal, and his design no doubt evinces much thought, and not a few meritorious points on formal garden lines, more or less applicable to such a scheme, having as its chief architectural feature a "Pump House" on the site of the present structure which fixed the position. To the right and left of this centre-piece, set at the head of the composition, range quadrant colonnades with coupled columns, the enclosing lines of the double quadrangle southward being continued by a series of lofty yew hedges, shutting off rose gardens on the east and western flanks. A pair of lily ponds, one below the other, occupy the middle space, their width corresponding with the extent of the Pump House on the north, while between these ponds a garden temple and

statues furnish the *tour de force* in the cross avenue, stepping down as it must to adapt the contour of the site and bisecting the two quadrangles, a fountain being placed at both ends, between the smaller rose gardens mentioned already. The water from the lower lily pond overflows by way of some semicircular steps into the lake of the Serpentine.

The architecture of the scheme is refined and unpretentious, and the scheme is set out by a detail in pencil and blue-grey wash to fin. scale, mainly in illustration of the "Pump House." The general drawings are finished to the size of 16ft. to the inch, delineated in pencil in a manner which hardly lends itself to satisfactory reproduction; moreover, the precise size and character of the elevations and sections themselves render the making of a satisfactory illustration impossible. In our judgment, the prescription of a subject like this is not wise, though it fits in, no doubt, with the passing craze for diversions of this sort, on the border line of town planning coupled with formal gardening. We should never limit any student to commonplace subjects; but surely the purpose of the prizes awarded by an elementary teaching authority like the Architectural Association might be devoted to something a little less ambitious than such a scheme as this for laying out the Garden End of the Serpentine. Some alternative a little more within the possibilities of an ordinary architectural practice might prove more useful.

It is our last wish to find fault with the Silver Medallist's work on this occasion, and we understand the natural desire among progressive people to select "up-to-date" subjects, and to stimulate by a tinge of romance the ideas of the aspiring competitors; but, after all, everyday problems most severely tax the skill of genius, to say nothing about developing the practical capabilities which make all the difference between a successful architect wanted by the public and the idealist, who often is an aesthetic Jack of all trades and a master of none, useless to himself, and a nuisance to his clients.

Few artists have been more fortunate in their lives and work than Sir L. Alma-Tadema, and fewer have more honestly and fairly won fame and wealth. Of his best, with his utmost pains, he gave, probably, the best of the sort the ordinary cultured layman is capable of appreciating. If that was repeated again and again in his four hundred pictures—or more—it is equally true that it became better and better as far as colour and elaboration of beautiful detail went. Of passion or power there was no trace in his subjects. They are costume pictures; but there is all the difference between them and the costume pictures of the average artist, as between the costume-plays as mounted by Irving or Tree and those of the ordinary scenic manager. They will fetch their prices and please their owners as long as they endure, just as the interiors and genre pictures of the old Dutch artists do. But as no one who saw their author crowned with bluebells at the Institute of Painters in Water-Colours Ball some years since could have really believed him an ancient Roman, so few can ever feel carried back into sympathy with or interest in the calm still Greeks and Romans and Egyptians

whose opulent surroundings are so suggestive of pageants or stage groups, and so barren in conception of the time-spirit of the period and subject suggested.

Builders and building owners should note Mr. Justice Joyce's judgment, which we give this week, in the case of "Denman v. the Hinkley Urban District Council," which we fully reported in our issue of the 14th inst. The point involved has never before been decided. Section 150 of the Public Health Act of 1875 says nothing about a time limit, and as Mr. Justice Joyce remarked, the action of the Urban District Council left the frontager in this case with no remedy at all. There were evidently negotiations for an arrangement pending between the Council and the builder, who seems to have acted in a perfectly bona-fide manner. They went off, apparently, as the judge said, because the defendant Council wanted to make the plaintiff pay their inspector's fee, which they had no legal right to impose, and we think Mr. Denman was fully entitled to have his surface water-pipes connected up, and that the decision in his favour is just and reasonable.

Each of them is such a past-master in official art of saying much that means little that nothing is likely to better things either as regards the Victoria and Albert Museum or the Piccadilly façade while Mr. Pease and Mr. Masterman are responsible for the Departments respectively concerned. As will be seen in our "Parliamentary Notes" this week, Mr. Pease admits that many of the water-colours at South Kensington have been hidden away from the public for nearly two years, although the improved lighting of the galleries they were removed to facilitate has been completed these six months. As regards the Piccadilly façade, Mr. Masterman's distinctions between new buildings and old façades is as ingenious as his dread whether the apparently only possible conclusion to be arrived at from his reply is just fed! Small wonder, perhaps, that on Tuesday morning inquiring legislators had to travel into the Woods and Forests, where, it seems, Mr. Runciman rules Piccadilly and Regent street, to pray that potentate to pledge himself to propitiate the Regent-street shopkeepers by the promise of a "small committee."

The Copyright Act comes into force on Monday, and many handbooks to its scope and meaning are already published. One of the most pertinent comments we notice is that by Mr. George Stuart Robertson in his book "The Law of Copyright," published by the Clarendon Press. What is the precise difference between "drawings of any architectural work of art" [s. 2 (1)] and "architectural drawings" of the same? Mr. Robertson says:—

The Court, when the matter is discussed, will have no small difficulty in deciding what is artistic or what is not in relation to an "architectural work of art." Many of us would say, for instance, that a plain old Georgian house was much more artistic than the queer-shaped erections which are put up in garden cities, but the builders of the latter would not admit this. Some day, perhaps, the Courts will have to decide how far a (true) artist's house it has a queer shape, though the ordinary tribunal is probably one of the worst means that could be desired for settling questions of aesthetics. It may be aided, or hindered, by the additional satisfaction that the work has to be original.

We fear they will, as we pointed out long ago. If any early claim is put forward for copyright in what Mr. Robertson calls "the

OBITUARY.

The death of Sir Laurence Alma-Tadema from cancer of the abdomen occurred at Wiesbaden on Tuesday, at the age of 75 years. He was born at Dronryp, Friesland, he studied his art at Antwerp, and first came into note by his "School for Vengeance," exhibited in that city in 1861. In 1870, shortly after his first wife's death, he came to England. But before this, in 1865, his work had been exhibited in the French Gallery, Pall-mall. In 1869 his "Pyrrhic Dance" was shown at the Burlington House. His first studio in this country was in Camden Town, but on his second marriage to Miss Laura Epps, in 1871, he removed to Townsend House, Regent's Park, and afterwards to a house in Grove End-road, St. John's Wood. Elected an Associate of the Royal Academy in 1876, he became a full member in 1879. He was a past-master of detail, revealing in the depicting of texture, and his archaeological, architectural, and classical knowledge were unrivalled among artists. He also displayed much skill and dexterity as a portrait painter, showing on the canvas something of the character of the subject portrayed. Six years ago he received the Royal Gold Medal of the Royal Institute of British Architects, and this far has been the only painter to be the recipient of this distinction. For many years he had been a welcome attendant and frequent speaker at the meetings at Conduit-street, and his remarks, delivered with great rapidity and in broken English, were always informative, and very often spiced with humour and with anecdote. From 1877 till 1901 Sir Laurence was Hon. Associate of the Institute, and had since been in the still more select company of the Hon. Fellows. Lady Alma-Tadema, who was herself a clever artist, died three years ago.

Mr. Robert Herbert Measures, late managing director of Messrs. Measures Bros., Ltd., died on Monday in London, where he had been brought from his home at Burnham-on-Sea to undergo an operation. The deceased, it will be remembered, was sentenced last October to seven months imprisonment for the common division of falsifying the accounts of the company, hoping to tide over a bad time," as the Common Sergeant observed when sentencing him, commenting at the same time on the defendant's previous exertions and high character. Mr. Measures was seventy-four years of age.

Additions are about to be made to the Primitive Methodist chapel in Starsted-road, Forest Hill, from plans by Mr. J. W. F. Popham.

A Local Government Board inquiry has been held at Pontefract into an application of the corporation for sanction to a loan of £21,000 for the purchase of land and the erection of working-class dwellings. The plans have been approved by Mr. W. J. Terran, of Ropergate, Pontefract.

A new elementary school is to be erected in Daniell-road, Truro, at a cost of £2,800. The school, which will be 110ft. long and 76ft. wide, with six classrooms, will accommodate 260 scholars, and will stand 150ft. from the main two playgrounds, each 200ft. by 150ft. The building will be of Mabe granite with facings of elvan. Mr. John Colcliver, of Truro, is the builder.

The members of the St. Albans and Herts Architectural and Archaeological Society had an outing on Tuesday last. Driving from the town to St. Albans they journeyed to Hatfield-road to Tyttenbanger House, through Hertfordshire lands. Mr. C. B. Ashdown conducted the party through the woods, and traced the history of the estate from monastic times. He remarked that Abbot Walsingham rebuilt the Manor House (1335). It was partly pulled down, and allowed to fall into decay later. Moote, in 1401, began rebuilding, and in 1448 Abbot Heywood finished the work. Mr. Ashdown remarked it as the finest monastic country residence in the kingdom. The drive was then continued to Salisbury Hall, where the party were received and entertained by Lady De la Rue, who conducted the members over the grounds, and pointed out the various features of interest. A vote of thanks to their hostess was proposed by Mr. A. E. Faulkner. The drive home was by way of the Old London-road.

PROFESSIONAL AND TRADE SOCIETIES.

THE BRITISH ARCHEOLOGICAL ASSOCIATION AT GLOUCESTER.—After an interval of sixty-six years, the British Archaeological Association is holding its annual congress this week at Gloucester under the presidency of Mr. Charles E. Keyser, F.S.A., of Aldermaston Court, Reading, with Mr. Richard Austin, the city librarian, as hon. congress secretary. The opening meeting was held in the morning, and a paper of a descriptive address was given by the Dean, Dr. H. D. M. Spence-Jones. He remarked that those who walked outside and looked at the building for the first time would say it was a purely Perpendicular building, as they gazed at the general contour, the magnificent Perpendicular tower, large west window, and other features. But when they entered a little closer they saw signs of an older date—Romanesque windows and masonry, and even older bricks, belonging to the period of the Roman domination in Gloucester. When they entered, either by the great south porch or the western door, they realised at once that the idea of it being a Perpendicular building was negative. They saw massive round columns, and these belonged to no Perpendicular period. Of those pillars they asked, where did they imitate them from? The late Professor Freeman, who taught him, said there was only one building on the continent of Europe that had these shafts or pillars, and that was at Turneus, and if they saw that they would say. There's where the nave of Gloucester came from. Then a paper by Mr. E. A. Hyatt on "Historic Gloucester." The corporation insignia, charters, and other civic records were displayed, and the town clerk Mr. G. Sheffield Blakeaway explained the chief points of interest connected with them. On Wednesday the morning was devoted to visits to the Medieval churches of the city, and in the afternoon members proceeded by branks to Etkstone, via Crickley and Firdlip, the President (Mr. Keyser) and Canon Bazeley acting as guides in the inspection of the ancient church. The visitors returned to Gloucester via Birdlip and Cranham Wood, and visited Prinknash Park, by invitation of Mr. J. Dyer Edwards (president-elect of the Bristol and Gloucestershire Archaeological Society). In Gloucestershire the Bishop of Gloucester and Mrs. Gibson were "at home" at the palace to members of the association. Yesterday (Thursday) the party went by steamer to Deerhurst and Tewkesbury, concluding with an inspection of the abbey. In the evening a meeting was held at the Gloucester Museum, where an address on the mural paintings of Gloucestershire was given by Mr. Keyser. The excursions to-day will be to Bishop's Cleeve Church, Hayles Abbey, near Winchester and Sudley Castle, and to morrow the proceedings will be brought to a conclusion by visits to Bredon, Overbury, and Beckford churches.

BRISTOL. The second monthly sketching expedition in connection with the Bristol Society of Architects took place on Saturday. Whitechurch was first visited, and, after inspecting the church, an hour was allowed for sketching and memoranda. Upon leaving Whitechurch the members proceeded to Pablow, where they were received at the church by the vicar, the Rev. H. J. Ker

Thompson, M.A., who gave an interesting description of the building and an account of the restoration work accomplished and still in progress. On the return journey a halt was made at Pensford, where there is a very fine specimen of an 18th-century mahogany Communion-table.

CHIPS.

Mr. A. J. B. Wace, Fellow of Pembroke College, Cambridge, has been appointed Lecturer in Ancient History and Archaeology at St. Andrew's University.

The late Mr. Muny Hart, of 25, Fernbank-road, Redland, Bristol, and formerly of Bowood, Calne, architect and surveyor, left estate of the gross value of £10,863 3s. 8d.

A Local Government Board inquiry has been held at Pontefract into an application by the corporation to borrow £22,000 for the erection of workmen's dwellings. Evidence was produced of overcrowding in the borough.

Good progress has been made in the erection of the new south transept to Selby Abbey. The gable is now completed, and the vaulted roof is being put into position. The old archway in the east wall of the choir has been opened out. Mr. J. Oldrid Scott, F.S.A., is the architect, and Mr. Ullathorne, of Selby, the builder.

Sutton Coldfield Town Council are applying to the Local Government Board for authority to prepare a town-planning scheme. The area included is 6,400 acres, and will be the largest single town-planning scheme yet brought out. Eighteen houses will be the maximum allowed per acre.

The Oldham Corporation are adding a spiral-guided gas-holder to the Hollinwood works. The holder, which is one of four lifts, with a capacity of 5,560,000 cu. ft., will be formally opened in the autumn. The height from the ground-line to the centre crown plate will be 176ft., and the height from the water-line to the top curb will be 154ft.

Mr. W. O. Meade-King, on behalf of the Local Government Board, has held an inquiry at Burnham-on-Sea into an application from the urban district council for sanction to borrow £250 in erecting a new pleasure-house at the public gardens, 210 for the extension of those gardens, 290 to widen High-street, 450 on the sea-front in the form of a promenade, and 420 for sinking a borehole in connection with a water development scheme. Mr. W. H. Chownis, surveyor, who prepared the schemes, gave evidence.

Interesting discoveries have been made at Wallend, upon the site of the Roman camp of Segedunum, during excavation for foundations for an hotel. Portions of ramparts of the east-gateway have been laid bare, and a wall of the north guard chamber within the east gateway. Hitherto the shape of the east ramparts has been uncertain, but the present discoveries will fix the position of the line which will determine the point. The remains of a gravel road which ran through the camp from the east to the west gateways, and also of a road which ran across it at right angles, have also been found. Portions of other walls supposed to have been connected with the soldiers' barracks, have been laid bare.

At the ancient Roman city of Caerwent, Mon., the dedication took place last week at the parish church of the renovated south aisle, due to the centenary of the battle of Marston. In the north porch, with its remains of a 14th-century nave, is the chancel, which will determine the point. The remains of a gravel road which ran through the camp from the east to the west gateways, and also of a road which ran across it at right angles, have also been found. Portions of other walls supposed to have been connected with the soldiers' barracks, have been laid bare.

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Engineering Notes.

Our Illustrations.

XVI. AVENUE ROAD.

This house has been designed by Messrs. Horace Field and Simmons, to the plans of Mr. Amos Faulkner, for Mr. Wm. Willett. Thin facing bricks supplied by Messrs. T. A. Lawrence and Sons, of Bracknell, have been used for the external work.

XIII.—XVIII. DEVONSHIRE STREET, LONDON, W.

This block of houses has been designed for Mr. Wm. Willett by Messrs. Horace Field and Simmons, to the plans of Mr. Amos Faulkner, Mr. Willett's architect. The external facing is of white Portland stone. Both drawings are at the Royal Academy Exhibition this season.

ventilators in the roof. The lighting will be by electricity. The exterior of the building will be of rustic bricks, and the dressings to the windows and doors of red Runcorn stone. The interior walls will be of imitation stone plaster. The columns to aisles will be of white Storeton stone. The roof is to be covered with Preselly slates. The following are the principal dimensions: Nave: length 56ft., width 27ft. 6in., height from floor to roof 49ft.; total width across nave and aisles 52ft. 6in. Chancel: length 34ft., width 25ft., height from floor to roof 38ft.

UPPER MEDWAY IMPROVEMENT.—Messrs. Griffiths, the contractors, are making good progress on the work of Medway navigation improvement between Oak Weir, East Wickham, and East Farleigh. About 200 men are employed, and it is hoped to complete this section in January next. Four new locks are being constructed, 21ft. 6in. wide and 105ft. long, the old ones being 18ft. by 50ft. or 80ft. These are at East Farleigh, Teston, Hamstead Yalding Bridge, and Spontoon.

The Carnegie hall at Workington is about to be enlarged from plans by Mr. H. B. Williams, the borough surveyor.

The East Kent Light Railways Company are applying to the Light Railway Commission for power to extend their railways through the parishes of Little Mongeham, Northbourne, Ham, Easby, and Woodnesborough.

At Chatham a museum has been built for the Royal Engineers from designs by Colonel E. H. Hemmings, R.E. It will house the collections of relics, trophies, and historic documents given by past and present members of the corps.

The Holyhead Urban District Council have decided to apply to the Local Government Board for sanction to borrow £1,358 to carry out part of a proposed sewerage scheme, the whole of which, it is estimated, will cost between £20,000 and £30,000.

The Middlesex County Council and the Finchley Urban District Council have agreed to remove the tramway standards in the centre of the Great North-road from Highgate to Whetstone, and adopt a system of side poles. It was reported to the Finchley Urban Council on Tuesday night that the work would cost £3,587, of which the local authority will pay about one-third.

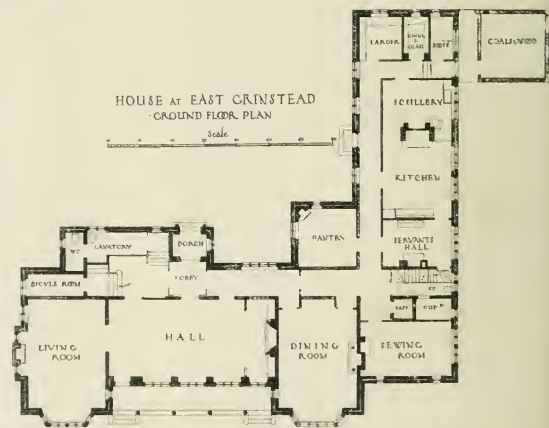
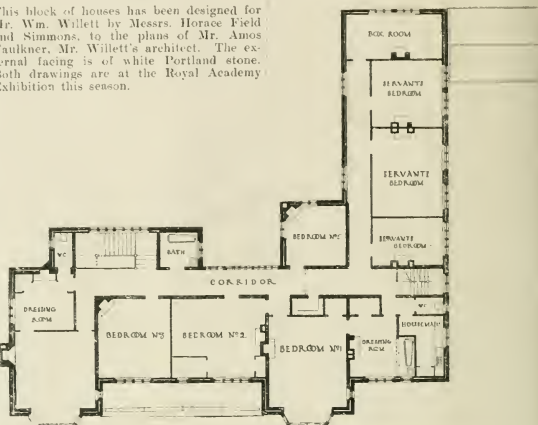
The Dominion Government propose to erect in Montreal a new Customs examining warehouse which will be the largest in Canada. Plans are being prepared for the erection of the building, which will cover an entire block, bounded by McGill, Youville, and Norman streets, and the Place d'Youville. The site is about 150ft. in width, and 550ft. deep.

Efforts are being made to proceed with the work of restoring the fine old parish church of Chesham, which is of Norman date. Between 1849 and 1865 works of restoration were carried out at a cost of £9,000. It is now proposed to pull down the present unsightly gallery, to rebuild the north transept on the lines of the new south transept, to complete the organ, and eventually to rebuild the aisles, for all of which about £5,000 will be required.

Cardinal Bourne has opened at Reading new Roman Catholic schools which have been built in the Abbey Ruins under the auspices of St. James's Church. The new building is in flint and stone, and is therefore in harmony with the church, which stands on the same site, and with the venerable and solid walls of the monastic institutions founded by Henry I. The schools accommodate 250 children in three departments, and cost £4,000. Canon Scoles was the architect and the contractor was Mr. Robert Curtis.

The foundation-stone of the new isolation hospital which the urban council of Eastleigh and Bishopstoke are erecting on a site between Earleigh and Chandler's Ford, was laid the other day. The site, which is 12½ acres in extent, was purchased for £1,000, and on it will be erected buildings for the accommodation of 12 patients, the cost being £5,500. The buildings are designed by Mr. W. Wallace Gandy, surveyor to the council, and are being erected by Messrs. H. Stevens and Co., builders, of Southampton.

The directors and shareholders of the Stafford Inland Canal and Navigation Company, Limited, have unanimously decided to proceed with the erection of new central premises in Vine-street, Stafford. The building will be set back so as to allow an additional width of 10ft. to the street. When the alterations are complete, the street will present a convenient approach to Corporation-street, Littlewarke, and the proposed new road across the Lammascotes. The new building will comprise on the ground-floor, three shops, a hall with seating accommodation for 500, and the offices will be situated on the first floor and will be reached by a staircase with entrances from Vine-street and Malt Mill-lane.



NEW CHURCH OF ST. BARNABAS, UNDER MOSSLEY HILL, LIVERPOOL.

The ground plan of this church consists of nave, north and south aisles, narthex, chancel, morning-chapel, clergy and choir vestries, and organ chamber. There are three main entrances to the church on the north, south, and west sides, with special entrance to morning chapel. The font is by the narthex. The church is to be heated by means of a low-pressure hot-water system, and ventilated by means of radiators with fresh-air inlets by the walls, and extract

The style is Transition between Decorated and Perpendicular. The architect is Mr. J. Francis Doyle, 4, Harrington-street, Liverpool. This illustration is from the perspective in the Royal Academy this year.

HOUSE AT EAST GRINSTEAD.

The accompanying plans show the extent and somewhat unusual arrangements of this new country house in Sussex, which is rough-cast in the upper parts, with stone quoins and ashlar dressings, the ground stage being in stone, random course. The view, of which a double page is given, illustrates the

entrance front. The interior has many interesting features, with picturesque design in woodwork and other finishings designed by the architect, Mr. T. E. Collett, F.R.I.B.A.

PREPARATORY SCHOOL, BISHOP'S STORTFORD COLLEGE

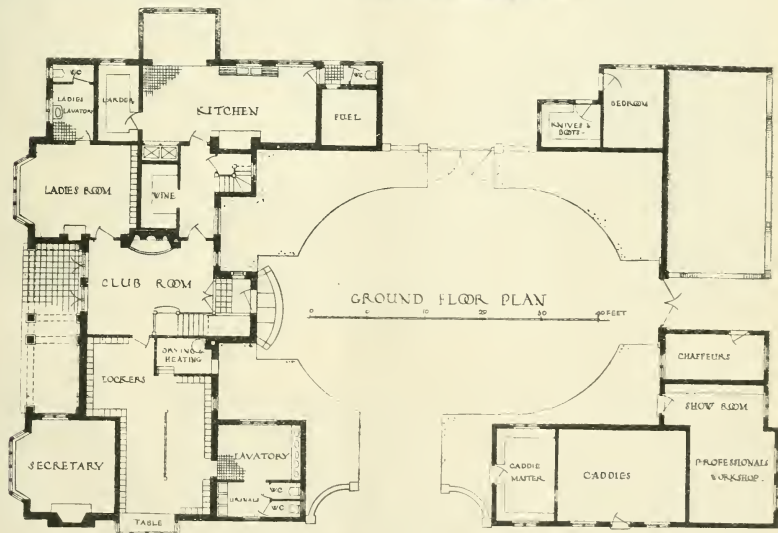
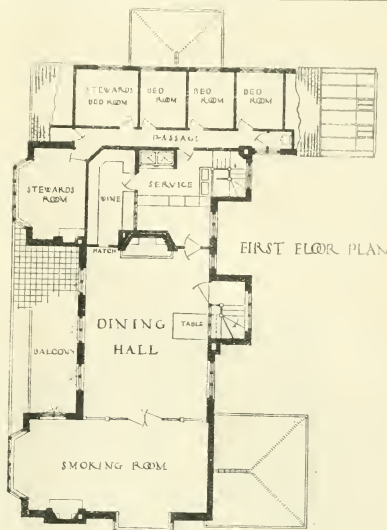
This preparatory school for Bishop's Stortford College, has been built to accommodate 40 boys, and the rooms are arranged to admit of a master's house being easily added. The materials used are local red hand-made bricks and tiles, flint and stone of various kinds being used as enrichments. All external woodwork is of oak. The building was carried out by Messrs. J. Day and Son, of Bishop's Stortford, under the superintendence of Mr. Herbert Tibberson, F.R.I.B.A., the College architect.

GOLF CLUBHOUSE, SWINLEY FOREST, ASCOT.

This very complete and extensive clubhouse has been built from the design of Messrs. T. E. Collett and Stanley Hamp. The two plans here reproduced show the lay-out of the building and various provisions included in the scheme, which is up to date, with every appointment for the convenience of the members. The building occupies a charming site, with which it assimilates with red-brick wallings and tiled roofs, broadly handled. The woodwork is finished white.

GREAT HORTON PUBLIC BRANCH LIBRARY, BRADFORD.

This building, which is now in course of erection, has a frontage to Cross-lane of 96ft., and a frontage to High-street of 40ft. The principal entrance is in Cross-lane, and has a vestibule opening into an entrance-hall, 28ft. by 9ft. This hall has been made as



GOLF CLUBHOUSE, SWINLEY FOREST, ASCOT.

spacious as possible, in order to avoid the congestion so often found in the halls of small libraries. The opening access system has been adopted, which, so far as Bradford is concerned, is a new departure. The reading room, on the east side of the building, gives accommodation for 50 readers, and at the reverse end of the hall is the juniors' room, providing accommodation for 38

readers. In addition a staff room and librarian's office are provided, together with ladies' reading-room on the first floor, for 21 readers. The principal elevations are to be faced with local stone with ashlar dressings. The roofs will be covered with dark blue Westmoreland slates. The internal walls are to be finished with plaster, and the suspended floors will be of fireproof construction and

finished with wood blocks. The whole of the internal woodwork and fittings, including screens, attendants' counter, and desks, will be executed in oak. The estimated cost of the building, inclusive of furnishing, will be about £3,500. The whole of the work is being carried out by local contractors under the supervision of Mr. W. Williamson, Licentiate R.I.B.A., the City Architect.



PROPOSED HOUSE

AT

EAST GRINSTEAD

T. E. COLLCUTT ARCHITECT

36 BLOOMSBURY SQUARE W.C.



Building Intelligence.

BELFAST.—At the annual meeting of the Belfast Cathedral Guild, the Bishop of the Army referred to the proposed completion of the cathedral fabric under the direction of Mr. W. T. Lynn, who had, he said, been in the councils of the late Sir Thomas Drew, F.R.S., own part, the Bishop said he differed from the proposition often made to undertake next the building of the western facade, as the first of the new work to be taken in hand. He thought the front could take care of itself, and was a most magnificent advertisement, but if there was anything in Belfast that cried aloud for money it was the front of the cathedral. What they wanted money for was the choir and the south transept. Already they had expended on the fabric £40,000, and the second section now proposed to be taken in hand would cost another £15,000. The Dean of Belfast endorsed the proposal.

CARDIFF.—The King laid on Wednesday the foundation-stone of the National Museum of Wales, in Calveys Park, Cardiff. Mr. Lloyd George, Mr. C. J. Gwynne, and Mr. J. E. Turner (the architect) and Mr. J. E. Turner (the contractor). The building was illustrated and described in our issues of April 1, 1910, and January 5 of the present year. A view of the buildings, by the architect, is being in the Architectural Room at the Royal Academy this year. The tender of Messrs. E. Turner and Sons, of Cardiff, was accepted in July, 1911, at £31,063, and work on the site was begun in September last. After leaving the Museum the King and Queen inspected the building of the University College of South Wales and Monmouthshire, including the new Virgilian Junior Research Laboratory, which the King declared open. Mr. W. D. Caroe, M.A., F.S.A., architect of the building, had the honour of being presented to their Majesties by the President. We published the plans of the college and a double-page perspective of the library in our number for October 22, 1909. Already over £15,000 has been expended upon the building, and the ultimate outlay will exceed £200,000.

EDINBURGH.—An important extension of the premises of the School of Cookery, Atholl-crescent, is about to be made. On the adjacent land just purchased it is proposed to erect a laundry and a demonstration hall. A model house, comprising a kitchen, bedroom, and living room, will be situated in the area flat of Nos. 1 and 2. On the same level a children's dressing room will also be made. On the ground floor there will be a kitchen and laundry in connection with the civic and social course, and also a dining-room for students. Floors 1, 2, and 3 will be given up to the accommodation of boarders, thirty-four of whom will be arranged for. There will be separate bedrooms for each boarder, a housekeeper's room, and a number of sitting-rooms. Over the back gardens of Nos. 2 and 3 it is proposed to build a day nursery, a man's room, four night nurseries, a kitchen, and a bathroom. Mr. H. Ramsey Taylor, A.R.I.B.A., Princes-street, Edinburgh, has prepared the plans. The total cost of the alterations will be about £4,000. When these are completed the school will have cost over £70,000.

LEIGH-ON-SEA.—The new public offices and fire station built from designs by Mr. J. W. Liversidge, surveyor to the urban district council, have been formally opened. The buildings are situated on the west side of Elm-road adjoining the new post office. The main front is of red facing bricks, with Bath stone dressings, and is Free Renaissance in style. On the ground floor are the clerks', surveyors', and collectors' departments. The main staircase from the entrance hall leads to the council chamber, 35 ft. by 18 ft., which has a semicircular tiled roof with panelled and painted ceiling. A raised stage accommodates the chairman and officials, and a central table of horseshoe pattern is provided for 18 councillors, with a separate desk for each.

Adjoining is a committee room 23 ft. 6 in. by 13 ft. The fire-station is approached from Main-street, and is 23 ft. 6 in. by 19 ft. 6 in., having dado in glazed bricks and Flettton facings above. The contract for the erection of the buildings, which cost £4,600, exclusive of site and furnishing, has been carried out by Mr. F. Davey, contractor, Southend, and Mr. E. T. Bradshaw has acted as clerk of works. Among the sub-contractors are: sanitary fittings, Messrs. G. J. London, Kilgus, Messrs. Carter and Co., Pooley heating, Messrs. Hayward Bros. and Eckstein, London.

LIVERPOOL.—A large block of buildings in Bevington-street, the latest addition to the re-housing scheme of the Corporation, was formally opened the other day. The new dwellings comprise fifteen blocks, containing 226 tenements, with accommodation for 1,372 persons, and two types of dwellings have been erected, one of the flat or semi-detached type, and the other of the self-contained cottage type. Colonel G. Kyffin Taylor, M.P., said that in 1898, when they began their rehousing scheme, a population of 12,000 people was living in 43,288 cellar dwellings, whereas last year the number had been reduced to 5,000 persons living in 1,685 cellar dwellings. The corporation hoped ere long to be in a position to abolish cellar dwellings entirely. While in 1898 there were 6,446 courts and alleys, at the end of last year the number was only 516.

SOUTHAMPTON. The foundation-stone of a new Council school at Shirley was laid by the Mayor on Thursday last week. The school will accommodate: Boys, 400; girls, 400; and infants, 400; a total of 1,200 pupils. The building is of the corridor type, and consists of eight classrooms on each floor—two for forty, four for fifty, and two for sixty scholars, and the plan is so arranged that these rooms can be altered in size at a small cost, should the regulations of the Board of Education require this to be done. There are also two small halls. Electricity will be used for lighting, and a hot water installation will provide heating. The contractor is Mr. A. Nichol, of the city centre, the contract amount being £14,620, being just over £12 per head. The plans were prepared by Mr. J. A. Crowther, borough engineer; Mr. W. Inkpen is the clerk of works.

A branch of the Ulster Bank is to be built at Lisburn, from plans by Messrs. Blackwood and Jury, of Belfast.

The Finchley Urban District Council propose to acquire as an open space, at a cost of £2,500, the Dr. House Wood Estate, and Finchley, the property of the Ecclesiastical Commissioners. They have also decided to acquire at a cost of £5,175 the Brook Farm Estate, Whetstone, comprising over 62 acres, for allotments and other purposes.

Mr. Thomas Grimley, F.S.I., F.A.I., of The Hayes, Manor-road, Bournemouth, Hants, formerly of Showell Green House, Sparkhill, Birmingham, of the firm of Messrs. Grimley and Son, auctioneers, surveyors, and estate agents, of Temple-street, Birmingham, who died on March 19, aged 65, left estate of the gross value of £226,309, of which £165,563 is net personalty.

The sanitary committee of the corporation of Middlesbrough recommend the adoption of the first section of a scheme for improving the main drainage of the town prepared by the borough engineer, Mr. S. E. Burgess, and estimated to cost £33,000. This will consist of a main sewer in the Marshes district. The second portion of the scheme would involve an expenditure of another £28,000.

For a long time motorists, cyclists, and drivers of vehicles generally have complained of the nuisance and danger caused by the centre tram-poles in High-street, West Bromwich, and the Corporation have recently decided to abolish these and substitute side poles. They made application to the Local Government Board for sanction to borrow £4,500 for works of street improvement in High-street, Birmingham-road, and in Dudley-street. Dudley-street, Holloway-bank, Old Meeting-street, and Carter's-green, and on Friday Mr. P. M. Crothwaite, M.Inst.C.E., Local Government Inspector, held an inquiry at the town-hall into the matter. Evidence was given in support of the application by Mr. A. Wickham, the town clerk, and Mr. A. D. Greatorex, the borough surveyor.

COMPETITIONS.

COLWALL SEWAGE DISPOSAL.—In the recent limited competition for the sewage disposal of Colwall, near Malvern, the scheme submitted by Messrs. Taylor and Wallin, of Newcastle-upon-Tyne and Birmingham (Mr. Henry W. Taylor, A.M.I.C.E.), has been premiated, and they have now been engaged as engineers for the execution of their scheme. The disposal works will be on modern bacterial lines of the most up-to-date description.

HUDDESFIELD TOWN PLANNING SCHEME. The Huddersfield Town Council adopted on Friday recommendations of the housing and town-planning committee that a town-planning scheme should be made for nine areas, that the town clerk should apply to the Local Government Board for authority to prepare a scheme for each area, and in due course for their approval of the schemes, and that four of the areas should be set apart for competitive schemes, for which the council should bid three premiums of 100, 50, and 25 guineas each, towards which Sir W. P. Raynor has given £100.

HULL.—The competition for Lee's Rest Homes, to be erected at Hull at a cost of £25,000 to £30,000, has been decided this week. Mr. Edwin Cooper, F.R.I.B.A., was the assessor. Mr. Henry T. Hare, F.R.I.B.A., is selected. Messrs. W. S. Walden and Son, of Hull, obtain the second premium, and Mr. H. S. East, A.R.I.B.A., of Grays Inn, and Messrs. H. W. Walls and J. Anderson, A.A.R.I.B.A., of Bloomsbury, divide the third premium between them as being of equal merit. The accepted design has an exceedingly capable plan, the scheme being so arranged in the layout of a quadrangle, running north and south, as to admit sunlight to every dwelling, all the living rooms facing the quadrangle, and all the sanitary arrangements being contrived on the exterior of the premises towards the street, so that at no time will any paths or other amenities be disturbed for access to the drains. The main blocks face east and west, though the site has a northern aspect, and by locating the administrative department in a low isolated building at the southern end of the quadrangle, sunshine will permeate the centre of the buildings at all times of the day. Each house has a clever entrance and good sitting-room with bay windows, and the fireplaces are well free of the doorways, a neatly-arranged larder, good sleeping room, and scullery on the off side of the premises, with the w.c.'s and bathrooms cleverly managed in a compact and isolated manner. The entrance and porter's rooms are situate towards the north, and the external treatment is of a domestic type, well adapted to the character of the undertaking.

STOCKPORT.—In the limited competition for mental wards at Stepping Hill Infirmary, Stockport, thirty-one architects took part. The cost of the proposed buildings is about £30,000, and three premiums of £100, £50, and £25 were offered. The successful was Mr. W. W. Lister, A.R.I.B.A. The first premium has been awarded to Messrs. Edwin T. Hall, F.R.I.B.A., and E. Stanley Hall, A.R.I.B.A., of London; the second to Mr. Arthur Marshall, A.R.I.B.A., of Nottingham; and the third to Messrs. Reginald H. Spalding, A.R.I.B.A., and Ernest G. Theakston, Lic.R.I.B.A., of London. The designs were shown on view at Penderbury Memorial Hall (Dodge Hill entrance) up to and including tomorrow, between 10 a.m. and 5 p.m.

The working plans for the restoration of St. Magnus Cathedral, Kirkwall, have now been completed by the architect, Mr. G. Mackie Watson, Edinburgh.

The entrance to the harbour of Boulogne is to be widened by the demolition of the present east pier, and erection of a new one. The contract has been awarded to Messrs. Galitz, at £166,250.

Miss Talbot, of Margam Park, is building a new church at Oakdale, in the hill district of the parish of Port Talbot. Mr. F. R. Kempe, F.R.I.B.A., of Hereford and Cardiff, is the architect.

Intercommunication.

GUINEAS FOR BEST REPLIES.

We offer a prize of one guinea for what we deem the best reply to any query below this week.

Replies must be sent in over real name and address. No others can receive a prize. The Editor's judgment is final.

This competition is restricted to buyers of the paper, and with each reply a coupon cut from our front page must be enclosed.

Any number of replies can be sent, but a coupon of this date must accompany each.

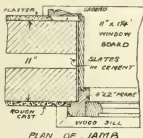
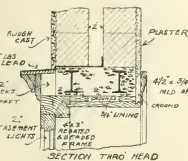
All else being equal, brief replies will stand the best chance. We emphasize this, as some correspondents ignore the fact that querists want terse facts, not long essays. Any necessary illustrations must be in line only—no tints or washes—and about twice the size they are meant to be reproduced. We are unable to avail ourselves of replies that contain illustrations unless we receive them by first post on Tuesdays.

The right to withhold the prize in the event of no reply being received worthy of it is reserved by the Editor, who also claims the right to publish any other replies he may deem useful.

We divide the guinea equally between Mr. W. H. Poole, Mr. P. D. Geall, and Mr. Frank Wilson.

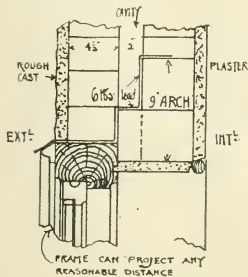
REPLIES.

[13108.]—PROJECTING WINDOW.—The following is a method for constructing a window as required by "Ajax." The opening is to be bridged by a cement and coke-bronze lintel, strengthened by two 3in. by 3in. R.S. (If desired, the lintel could be made 9in. in width, and not 12in., as shown, and would suit all requirements equally as



well.) By using the steel joints, the depth can be reduced considerably, this object being maintained to obviate exposed lead-work. This is also assisted by fixing a small built-up cornice to head of window, as shown. As regards the jambs, the only efficient method of treating such is to carry the cavity right through, and to close it with slate bedded and jointed in cement. I think the sketches will sufficiently explain any further details.—P. D. Geall, City Surveyor's Office, Chichester.

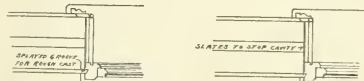
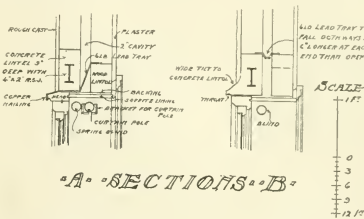
[13108.]—PROJECTING WINDOW.—Sketch here shows the necessary details. Trouble generally arises with these external casements, owing to the



same manner. The reveals would be quite weatherproof if the flashing is omitted.—Frank Wilson, 225, Nottingham-street, Sheffield.

[13108.]—PROJECTING WINDOW.—Herewith I send a couple of sketches showing how "Ajax" may finish his window. I would draw his attention to (a) depth of concrete lintel (reinforced) to equal three courses of bricks. (b) The absence of roughcast against lead. (c) Provision for blind and curtain—a point often forgotten by the architect, but

BY 13108



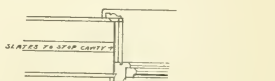
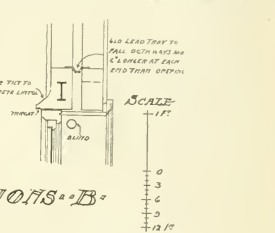
"A" PLANS "B" NEW HEAD

apparent to the housewife. (d) Method of stopping cavity. Otherwise I think the sketches are self-explanatory.—K. H. Read, Lecturer on Building Construction, Gloucester Technical School.

[13108.]—PROJECTING WINDOW.—If the plaster is allowed to run across the soffit of window opening without any lead above same, any moisture finding its way into the cavity above the window would run down the inside of outer 4, and ruin such soffit plaster. The suggested 3in. lintel does away with the above difficulty, and the "key" for stucco on arch or concrete is not covered with lead, and only the usual 3in. or so of lead would show on the outer

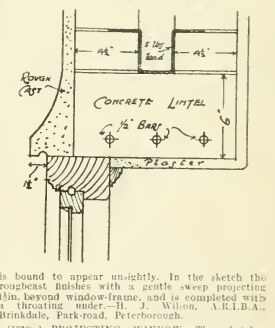
double course of plain tile (creasing, bedded in cement and breaking joint, immediately above the projecting casement frame, and having a projection of about 1in. beyond the face of the frame, and at each end, and hence out the roughcast work over on to the tiles. This looks well, and makes a sound and lasting job.—George Norman, 147, Grange-road, Miford, Essex.

[13108.]—PROJECTING WINDOW.—The accompanying sketch shows the method which I suggest



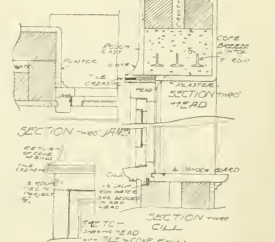
"A" PLANS "B" NEW HEAD

as being the most suitable for the conditions as mentioned in question. A lintel of run concrete is shown under full thickness of wall with 3in. lead across same under cavity. The use of lead over head of frame seems unnecessary, and if used so as to be seen, the joint between roughcast and lead

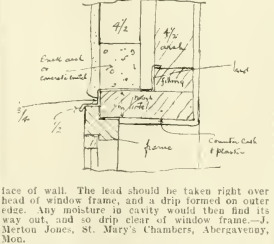


is bound to appear unsightly. In the sketch the roughcast finishes with a gentle sweep projecting 12in. beyond window-frame, and is completed with a churning under-frame.—J. J. Wilson, A.R.I.B.A., Brinkdale, Park-road, Peterborough.

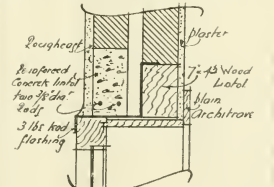
[13108.]—PROJECTING WINDOW.—The sketches show 4in. by 3in. jambs and heads, 4 by 3 in. all having slightly rounded corners, and with 3in.



round pegs at top of jambs and mullions, projecting 12in. The sill to be out of 3in. by 3in. oak. The creasing is shown over the head with the end returning (see sketches). This "Ajax" will find to have much nicer appearance than the lead flashing. I suggest a coke-iron lintel over the opening, formed in situ, of one part cement to five parts clean gasworks coke



face of wall. The lead should be taken right over head of window frame, and a drip formed on outer edge. Any moisture in cavity would then find its way out, and so drip clear of window frame.—J. J. Wilson, A.R.I.B.A., Brinkdale, Park-road, Peterborough.

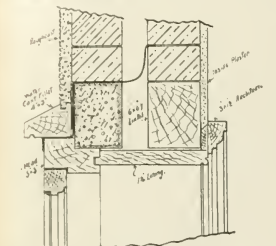


roughcast walls. The concrete lintel is 9in. deep, reinforced with 3in. diam. steel rods. The stile of window-frame could be rebated in plan, so as to sit against brickwork to afford security against being blown in. (b) The method shown necessitates the use of wood joinings and architraves to inside of jambs and head. The cavity on plan would be better if stopped at all openings with brick cut to fit.—J. W. Thorpe, 5, Woodville-terrace, Lytham.

[13108.]—PROJECTING WINDOW.—The method of constructing a window as required by which I used in a similar case was as follows.—Insert a

containing about one-third of its bulk of fine gravel. The lutelet to be 12in. longer than the opening and to have three 5in. steel ties embedded in the cavity I suggest being bonded up in the wall as shown—J. W. Cropper, 18, Dale-street, Tottenham.

PROJECTING WINDOW.—The accompanying detail sketch shows a sound and effective method of carrying out the work.



method of carrying out the work "A" has in hand. A wood cant fillet fixed over the head of the projecting frame gives a satisfactory finish for the plaster or roughcast. The lead flashing is taken across the cavity and tucked into the joints of the plaster thickness of the wall, and dressed down over the concrete fillet and the wood cant. The lead should be in two widths, lapped as shown, to avoid creasing or working. To face the inside jambs and sill of windows across the 2in. cavity, a 1in. lining-board as shown would make a good finish; but if plaster is particularly required, a good key may be given by drawing out the side of the window fillet before it is fixed in position and fixing strips of metal lathing over the cavity in the jambs—W. H. Poole, 11, Charles-street, Malden.

PROJECTING WINDOW.—If cement roughcast be employed and this is far preferable to any other, then no lead is needed over head of window. The roughcast can be brought over and set in a projecting fillet. If desired, this treatment may be improved by inserting small pieces of slate laid on top of head and projecting some 1in. in front as support for the roughcast, and then a plaster drip can be obtained. The cavities against roughcast should be filled up with either brickwork or concrete to give more stability and the 1in. cant and lead above should be equally solid.—A. Seymour Rogers, St. Hill, Birmingham.

A public hall is about to be built in Beaumont-street, Southwark-Wear, from plans by Messrs. Joseph Potts and Son, of Sunderland.

The Duke of Norfolk laid the foundation-stone at Mottisham, Kent, on Monday, of a new house which is being erected by the Ironmongers' Company in place of three which they erected in Sherchurch in 1712, as trustees under the will of Sir Robert Gifford. The new buildings will cost upwards of £47,000, and will accommodate forty-four poor women.

At a special meeting of Shrewsbury Town Council held on Monday it was decided after some discussion, to make application to the Local Government Board for sanction to a loan of £12,000 to defray the cost of widening the English bridge in 1876, was laid on the point that if the council decided upon the improvement the work should be undertaken at once, so that it might be completed by the time fixed for the visit of the Royal Agricultural Society to the town in 1914.

The laying of the permanent lines of the new East Kent Railway line has just commenced. The line, which will be a double one, will start at Shepherdswell and end at Tilmanstone; but the line will be continued to Sandwich. Some 100 ft. extra track will be laid on the line between the two stations, and it is likely to be put on. The line which now runs from Shepherdswell to Tilmanstone was only laid for temporary use, and will be discontinued when the new one is laid. The permanent line will be carried along several miles.

At the meeting of the American Electrochemical Society held at Boston, Mass., Mr. F. V. J. Fitzgerald read a paper on the suitability of various heat-insulating materials for checking the heat-conducting losses. Sixty carlinite bricks, in the form of bricks, were built into a furnace heated from the inside by a bichrome solution wire. The following is the order in which the materials were tried, stand in order of their insulating properties: Silica, carlinite, magnesite, alundum silica, firebrick, red brick. The great insulating effect of small quantities of finely picked coverings was pointed out.

LEGAL INTELLIGENCE.

MUNN v. LAMBETH BOROUGH COUNCIL.—Contract for Painting, Railing, and Footing. The questions of the amount of compensation payable by the borough council to Mr. Munn, in consequence of the latter being injured in carrying out his work by the precise finishing tint and painting decided on and heard before the Registrar of the Lambeth County Court on Monday last, with the result that Mr. Munn accepted the sum of £10 in full settlement of his claim under this heading, the matter of costs being reserved for the Judge to deal with.

LIABILITIES OF CONTRACTORS EMPLOYING SUB-CONTRACTORS. Padbury v. Holliday and Greenwood, Ltd. The question of the liability of contractors employing sub-contractors for injury done to persons passing over the highway, through the negligence of a servant of the sub-contractors, came before the Court of Appeal, consisting of Lords Justices Moulton and Buckley and Mr. Justice Parker on June 21, upon the application of the defendant in the case of Padbury v. Holliday and Greenwood, Ltd., for judgment or new trial in the action, which was tried before Mr. Justice Coleridge and a special jury last February. The action was brought by Mr. A. G. Padbury, a traveller against the defendant, Padbury and Greenwood, Ltd., builders and contractors, of Loughborough Park, Brixton, and Messrs. Wainwright and Waring, Ltd., of Chiswick, to recover damages for personal injuries sustained by him. Messrs. Holliday and Greenwood, Ltd., were employed by the defendant to erect premises in Fenchurch-street, and the defendant entrusted the work of erecting and maintaining the same to Messrs. Wainwright and Waring, Ltd. On January 4, 1911, while one of the casements was being put on, an iron crane was placed by a workman in the employment of Wainwright and Waring, Ltd., and the crane, the casement having apparently been blown to by the wind, the tool fell and struck the plaintiff, who was passing along Fenchurch-street at the time, and caused him serious injuries. The defendants, Holliday and Greenwood, Ltd., denied negligence, and, in the alternative, said that if there was negligence, it was not their negligence, but that of their sub-contractors, Wainwright and Waring, Ltd. Messrs. Wainwright and Waring, Ltd., appeared on the writ; but subsequently the plaintiff discontinued the action against them. At the trial, the jury found, in answer to specific questions laid to them by the learned judge, that the falling of the crane was something which might reasonably have been foreseen by the defendants, having regard to the character of the work being executed by the sub-contractors, that the defendants ought to have taken precautions to guard against the possibility that the defendants did not take precautions to avoid such a possibility; and they assessed the damages at £500; and upon the findings the judge gave judgment for the plaintiff against Holliday and Greenwood, Ltd., for £400 and costs.

From this decision Holliday and Greenwood now appealed. At the conclusion of the arguments of counsel, Lord Justice Moulton said he was of opinion, having regard to the character of the work being done, that the defendants did not take precautions to avoid such a possibility; and they assessed the damages at £500; and upon the findings the judge gave judgment for the plaintiff against Holliday and Greenwood, Ltd., for £400 and costs. From this decision Holliday and Greenwood now appealed. At the conclusion of the arguments of counsel, Lord Justice Moulton said he was of opinion, having regard to the character of the work being done, that the defendants did not take precautions to avoid such a possibility; and they assessed the damages at £500; and upon the findings the judge gave judgment for the plaintiff against Holliday and Greenwood, Ltd., for £400 and costs.

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BUILDING SOCIETY'S ACTIONS AGAINST ARTHUR HICKS FOR ALLEGED NEGLIGENCE.—In the King's Bench Division on Saturday (June 22), Mr. Justice Bankes gave judgment in two actions brought by Mr. Alfred

Charles Thomas, of Cardiff, Mr. David Prothero, of Bargoed (Glamorgan), and Mr. Benjamin Edmunds, of Gilfach, as trustees of the Gilfach Cottage Building Club, against Mr. William Harris, architect, of Bargoed. Plaintiffs claimed compensation for alleged negligence of Francis Williams, K.C. (for the plaintiffs) explained that the cases came before his Lordship in the Civil List at Cardiff Assizes, and were then investigated by a Special Referee. Some years ago Mr. Harris supervised the erection of several houses for the Society at Gilfach, and, it was alleged, had allowed the builder to overcharge. The contract price in the first action was £6,494, and the plaintiffs originally claimed of £230 10s. 8d. had been overpaid. Defendant denied the allegation of negligence, and pleaded a set-off for extras to the amount of £488 6s. 9d. These two sums were reduced by the Judge and the Special Referee to £123 17s. 10d. and £79 15s. 11d. respectively.—Mr. Justice Bankes: So the net result is that defendant has allowed the builder £260 too much.—Counsel submitted that this was evidence of negligence having regard to the way in which the work was carried out and that the plaintiffs were entitled to judgment. In the second action, in which the contract price was £1,750, plaintiffs' claim was reduced to £225 0s. 10d., and the Special Referee found that the defendant had not been guilty of negligence.—Mr. Justice Bankes expressed the view that defendant acted as a quasi-arbitrator, and had not been guilty of negligence. He accordingly gave judgment in both actions, and with the costs of the Special Referee's Report.—Mr. Williams intimated that the plaintiffs might take the cases to the Court of Appeal.

APPEAL BY CONTRACTOR.—A case affecting the question of the liability of contractors was argued on June 21 in the King's Bench Division before a Divisional Court consisting of Justices Bray and Bankes, when the defendant's appeal from a judgment of Judge Hamilton at the Haverhill County Court, in the County Court, was heard in the action "Wilkinson v. Shorrock." Mr. Scott, who appeared for the appellant, said that the action in the County Court was against the defendant—who was a contractor in a large business in connection with the docks in respect to damages for personal injuries caused by alleged negligence, and the result was a verdict for the plaintiff, and an award of £20 damages. The appeal before their Lordships was on the ground that there was no evidence of negligence on defendant's part at all. Mr. Justice Bray, in delivering judgment, said that, in his opinion, there was no evidence of negligence to submit to a jury. Judge Hamilton had said that he found the defendant to be responsible for the safety of the gate after all the workmen had left the premises on the Saturday; but he did not say that any of the workmen came to such a conclusion. There was, in fact, no evidence to warrant that particular conclusion. The County Court Judge had held that defendant was negligent in permitting his sub-contractors to come on to the premises, and that a jury trying the case had finally fixed the gate and left the works; but that (Mr. Justice Bray) did not agree with that at all. If such constituted negligence, it was at any rate not the cause of the accident, which, with the evidence showed that the sub-contractors' men in fact had nothing to do with it. The accident happened through the brick-carter coming when he was not reasonably expected. There was no evidence to show that the defendant was negligent, and the appeal must be allowed, with costs and judgment entered for the defendant Mr. Justice Bankes concurred.

SEWER CONNECTIONS AND FRONTAGES.—Denman v. Hinckley Urban District Council. Mr. Justice Joyce delivered a considered judgment in this case last week. The litigation, as fully reported in our issue of the 14th inst., arose out of the right of plaintiff to connect water gullies, and, with the council's sewer in Clarence-gardens, Dollis Park, and raised an important question to builders and frontagers in the district. His Lordship said he was surprised to find that the point involved had never before been decided, and that the Council under the Public Health Act, 1875, under which these proceedings came, said nothing about a time-limit. All it said was that if the statutory notice was not complied with, then the local authority might step in, do the work themselves, and charge the frontagers with the cost. The Council contended that if the work of connecting up was not done within the stipulated time, then they were entitled to step in, even while

amount except by purchase or gift from the owner. Supplementary powers should be available in such cases. The witness said he would not permit ancient castles to be converted into dwellings, even the owner should not be allowed to erect a modern dwelling within the existing monument like Conway Castle. For the purpose the law needed strengthening. As for restoration, it should be confined to preservative work. Wales had many old churches of extreme interest, and attempts to restore some of them had really meant rebuilding. Mr. A. H. Curle, secretary to the Royal Commission on Ancient Monuments in Scotland, advocated a separate advisory board for that country on the ground that the ancient monuments were very different from those of England, one reason being that domestic architecture did not appear North of the Tweed till the sixteenth century. The Committee adjourned until Wednesday next.

MANCHESTER ROYAL EXCHANGE. A Committee of the House of Commons passed on Wednesday the Bill providing for the rebuilding of the Manchester Royal Exchange at an estimated cost of £1,000,000, subject to certain conditions as to exchange of lands between the directors of the Exchange and the Manchester Corporation. There was no opposition to the preamble of the Bill which has already passed through all its stages in the House of Lords.

SITES FOR GOVERNMENT OFFICES. The Public Office (Sites) Bill was considered on Wednesday by a Parliamentary Committee, with Mr. Wellesley Bennett in the chair. The measure was proposed to empower the Minister of Works to purchase, by compulsion or otherwise, land for the extension of the Board of Trade Offices, Whitehall, the Record Office, Chancery-lane, and the Patent Office, Holborn. On behalf of the Board of Trade, Mr. Fitzgerald said that the offices of that Department were irregular and inconvenient, being scattered over thirteen or fourteen houses, some of which were 200 years old. They were, moreover, quite insufficient for the staff of 840 persons. Entirely new offices were needed, and they should be built on Crown land in Whitehall, including part of the site of the old Palace of Whitehall. For that purpose it was necessary to displace the present leaseholders, but the only opposition came from the trustees of the National Club Whitehall-gardens. The lease of the club had seven years yet to run, and the Government were compelled to compensate them. The Land Clauses Act. Mr. Ram, K.C., on behalf of the club, said it had been chosen on its present site for sixty-seven years, and suggested that the Government should give it another site on Crown land in the same neighbourhood. The proposal was, however, rejected by the Government. Sir W. Watson and Sir A. R. Stenning, F.R.I.B.A., members of the club, and Colonel Russell, secretary, deposed that if ejected from its present position it could not find a better site in the neighbourhood. The Committee adjourned.

The rebuilding of the parish church of Slough, the last section of which has just been completed, has been carried out from plans by Mr. J. Oldrid Scott, F.R.S.A.

The Town Council of Edinburgh have agreed to proceed with the reconstruction of the bow in the church. Estimates have been accepted to the amount of £2,092. The architects are Messrs. McGibbon and Ross of Edinburgh.

The Chief Inspector of Factories and Workshops in his annual report, states that a site in Westminster has been secured for the proposed new factory of the appliance and tool industry. The building will be begun as soon as possible.

Mr. R. G. Hetherington, A.M.I.C.E., a Local Government Board Inspector, on Tuesday held an inquiry at Sliden respecting an application by the Urban District Council for sanction to borrow £350 in connection with the sewage works extension. There was no opposition.

A joint committee has been formed by the Architects, Builders, and Joiners, Ashby Water, Hartshorn, and Seals, and Castle Donington for the purpose of erecting an infirmary hospital. A site on the Nottinghamshire has been secured, and Mr. Thomas Gifford, architect, Gainsborough, is instructed to prepare plans and to obtain tenders.

The Glasgow Town Council have decided to obtain a new water supply for the burgh, at a cost of about £20,000 and have appointed Mr. James L. Fraser of Glasgow to superintend the scheme. The new works are to be constructed on the banks of the Duff and Gifford Burn, and the flow at a high level at Larkhall. A second Glasgow district supply is at the water works at Greenock.

STATUES, MEMORIALS, &c.

CAMBRIDGE.—The Bishop of Ely, visitor of Jesus College, Cambridge, unveiled last week in the college chapel a memorial to Cranmer, who was a Fellow of the college until his elevation to the Primacy in 1533. The memorial consists of a medallion portrait of Cranmer, framed in alabaster carved in a Classical design, and is the work of Mr. Albert Bruce-Joy, who has made a special study of portraits of the Archbishop. It is essentially a reproduction of the portrait of Cranmer by G. F. Kneller, the National Portrait Gallery, dated 1546, perhaps the only authentic portrait in existence. There is a similar picture in the Combination Room of the college.

WATER SUPPLY AND SANITARY MATTERS.

LITTLETON.—At the last meeting of the Metropolitan Water Board, the design and the works to be authorised under the New Works Act of 1911, and recommended that Reservoirs 6 and 7 should be undertaken. Reservoir 6, at Littleton, would have a capacity of 1,350 million gallons, and Reservoir 7, near Penton Hook, of 3,500 million gallons, with 15 acres of filter beds at Kempton. The machinery would be capable of delivering 30 millions of gallons of water daily through a steel aqueduct from Kempton to Shoot-up Hill. The pipeline would be 15 miles in length. The first section would be ready in 1917. The cost of the whole scheme, of which this was a part, would be the subject of a further estimate. The cost of the first section would be £1,645,400. Subject to approving of plans and estimates, the board decided that Reservoirs 6 and 7 should be undertaken by the board.

MONTROSE'S NEW WATER SCHEME.—The formal inauguration of an augmentation and filtration scheme in the town of Montrose water supply at Kinnaber, near Montrose, took place last week. The scheme, which has cost almost £22,000, has been carried through within a couple of years. Mr. J. B. Bennett, C.E., Edinburgh, the original engineer for the works, retired on account of ill-health, and the operations were carried through by Messrs. Carter and Wilson, C.E., Edinburgh.

At Winchester a Local Government Board inquiry has been held into an application of the city corporation to be permitted to borrow £4,361 for the provision of a cemetery at Magdalen Hill Down.

The parks and open spaces committee of the London County Council approved the design of a proposed memorial to the late Mrs. Ramsay MacDonald, to be erected in the gardens at Lincoln's Inn Fields.

The marriage of Miss Sarah Hilton, younger daughter of the late Councillor Daniel Hilton, of Newbury, to Mr. George W. George, architect, of Alton, N.B., took place at Heyshide church on Wednesday last week.

On Saturday afternoon, Mr. J. W. Hills, M.P., for Durham City, laid the foundation-stone of a new chapel at St. Hild's College, the Durham Diocesan Training College for schoolmistresses, at Hild, near Easingwold, of Sunderland and Newcastle is the architect.

The city corporation of Norwich adopted at their meeting, schemes for sewerage extensions in the Colmar-road and Lawson-road districts, and for the extension of air-compression plant at Newmarket, as proposed by Mr. A. E. Collins, the city engineer, who estimated the cost at £10,000. It was also agreed that various additions and alterations be made to the asylum buildings at a total estimated cost of £7,943.

Prince Arthur of Connaught on Saturday opened the new buildings of the Royal Academy of Arts, at York Gate, Mayleborough road, at a cost of over £60,000. The architects are Sir Ernest George and Mr. Yeates, of Maddox-street, W., and Messrs. G. E. Wallis and Benson, Ltd., Maidstone, were the contractors. We illustrated the concert-hall from the drawing at the Academy last year in our issue of May 19, 1911.

A new Roman Catholic church of the Most Holy Redeemer has been built at Concord, near Belfast, from plans by Mr. J. J. McDonnell, of Belfast. The church is in the style of French Gothic, the edifice consisting of nave, aisles, transepts, sanctuary, semicircular apse, and side chapels having a total length, through nave and apse, of 151 ft., and a total width through nave and aisles, of 40 ft. 6 in. The height from floor to ceiling of barrel vault is 60 ft., and the aisles are raised to a level of 24 ft. from nave floor.

Our Office Table.

By his will the late Mr. Charles Brinsley Marlay, who died on the 18th inst., has bequeathed to the University of Cambridge the option of accepting his valuable art collection as an addition to the Fitzwilliam Museum or as a separate collection, together with an endowment for its housing and upkeep. The pictures include Hogarth's portrait of "Lavinia Fenton, the actress, who became Duchess of Bolton," an old copy of Titian's "Peter Martyr"—the original of which was destroyed in a fire in Venice in 1666; "The Story of Cupid and Psyche," formerly ascribed to Filippo Lippi, and more recently to Jacopo del Sellaio; Cosimo Roselli's "Virgin and Child with St. Christina and St. Catherine of Alexandria"; "A Virgin and Child," signed by Cimabue; Cosmello; a "Fortune" by Marcello Venusti; "A Landscape," by J. Van Goyen, signed and dated "V. G. 1655"; a "Portrait of a Cardinal," by Jacopo Bassano; and a full-length portrait of "Beatrice de Cusance (Madame de Ste. Croix)," by Vandeyck; and also the late Lord Leighton's "Clytie." If the bequest should be accepted, Mr. Marlay has bequeathed £50,000, free of all duties, to be applied by the Museum authorities as they in their absolute discretion shall think fit for all or any of the following purposes:—(a) The extension of the Museum; (b) providing a separate building; and (c) as an endowment fund for the curator or curators of the Marlay Collection or the bulk thereof. Moreover, he has bequeathed unconditionally and free of all duties to the University his leasehold house and premises, St. Katherine's Lodge, Regent's Park.

A correspondent of the *Times* points out that H.M. Office of Works might do more than it has done to foster, educate, and strengthen healthy public opinion in favour of the protection of ancient monuments. He states that the Board of Works has provided no finger-posts or letter-heads, giving the whereabouts of the most important circle of Arbor Low, between Hartington and Bakewell—an ancient monument of considerable importance—and some tumuli in the neighbourhood of Arbor Low. These interesting remains of a remote antiquity, which are under the custody of the Office, lie away from high roads and footpaths, and must be reached by scaling the stone walls which here separate field from field.

A useful English translation of Paul Fleury's treatise on "The Preparation and Uses of White and Zinc Paints" (crown 8vo, 250 pages, with 32 tables, price 6s. net, post free 6s. 4d. home, 6s. 6d. abroad) is published by Scott, Greenwood, and Son, 8, Broadway, Ludgate, London, E.C. It embraces a summary of technical principles, painting on woodwork, better class painting on woodwork, painting on plaster, on mortar, and on solid porous materials, the painting of white zinc, testing of commercial zinc whites, a note on the experiments of the Dutch Commission officially entrusted to make comparative trials between white lead and white zinc, with results and criticisms, the manufacture and different treatments of white zinc—its modifications and improvements, the legislative history of white zinc paint, legislation on French and foreign methods of qualitative analysis, testing preservation and improvement of varnishes by ageing, analysis of yellow and white wax, selected furniture polish recipes, normal polish for floors, parquets, and woodwork, virgin wax polish for flattening of paints or polishing of varnishes, formulae for a waterproof composition for plaster and stone and damp walls, special and more economical formulae for waterproofing plaster, and a well-arranged index and copious tables.

A third edition of "The Painter's Pocket-Book," by Arthur Seymour Jennings, is published, at three shillings, by the Trade Papers Publishing Co., Ltd., 365, Dorking Bank Chambers, much enlarged and revised. As we have recently said, the book is a most useful practical reference guide to every-day work, and covers the whole ground. The

painter will find it indispensable; but its scope of usefulness is far wider. Not only the architect and builder should get it, but all who have to do with painting. If some of our municipal authorities and administrators had it, for instance, it might ease litigation of the sort rather under discussion just now about "lowest tenders."

It is just two hundred years ago that a Greek physician of the Imperial Prussian Court obtained a concession for working the large asphalt beds of Neuchâtel, Switzerland, which at that time belonged to Prussia. But the enterprising physician had no luck, as he failed to arouse the interest of the financiers. It was much later, at the time of the discovery of the asphalt-beds near Seyssel, in 1812, that closer attention was paid to this mineral, and preparations were made for its mining. Yet another twenty years elapsed before Count Sasseny succeeded in drawing the attention of builders and allied industries to this material.

It is not generally known that the operation of soldering lead pipes with lead, the "lead burning" of to-day, was known and practised in the Middle Ages. Reference to this matter is made in one of the books of Vincent de Beauvais (a recorder of the Court of Louis IX. of France), who died in 1261. Following is the passage in question, taken from an essay on tin (vol. viii., part i.): "If tin is exposed to a moist atmosphere, it will corrode; and human ingenuity has of late invented useful improvements by which it is possible to unite leaden subterranean water-pipes with the aid of molten lead instead of soldering with tin. Pipes soldered with the latter metal never lasted long, but if lead is used it will last for all time."

A composition for use in the manufacture of floors, patented by Scholz, 48, Cleveland-street, Birkenhead, consists of magnesite, wood-floor, and colouring matter brought to a plastic condition by mixing with a solution of magnesium chloride to which has been added olein, phosphoric acid, and "blowd" linseed-oil (the scum that collects in the boiling of linseed oil). About 71 per cent. of magnesite, 20 per cent. of wood-floor, and 9 per cent. of colouring matter are mixed in a dry powder, and a solution of magnesium chloride at 21° B., to which are added small quantities of phosphoric acid, olein, and blowd linseed-oil, is mixed with this powder to produce a composition which can be laid with a trowel.

Many builders fail to get best prices for their old metal—brass, bronze, copper, lead, solder, tin, zinc, etc.—because they do not find the best market, and get direct to the founder. In these days, in this, as in other matters, there is no room for the middleman. The man to get at is the man who is anxious to buy because he can promptly realise at a fair profit. Those with experience tell us that such buyers are Fry's Metal Foundry, 25-27, Holland-street, Blackfriars, who give best cash prices for all non-ferrous old metals. Iron and steel cost as much to handle, generally, as they are worth. So if you have a little mine of forgotten wealth in the yard, which has been accumulating because prices offered seemed so inadequate, ring up Hep 3754 and ask Fry's to put it in wholesome circulation once again, and the price into your pocket.

Mr. George Johnston, of Belfast, has been appointed building inspector for the surveyor's department of the Belfast Corporation.

The death occurred on Tuesday week, at the age of 75, of Mr. George Saxby, brick and tile-maker, of Seal Chart, Mid-Kent. A well-known figure to many inhabitants of Sevenoaks and the district, Mr. Saxby, who had been a builder in 1879 from the late Mr. Reynolds, in whose employ he once was.

The Great Western Railway Company is reconsidering its scheme for the new cutting and breakwater works at Fishguard following advice by Sir William Matthews, the Dover Harbour consulting engineer, who has twice inspected the harbour with Captain John Pritchard. The company has no intention, however, of abandoning the deep-dredging and other harbour improvement works at Fishguard.

MEETINGS FOR THE ENSUING WEEK.

SATURDAY (To-morrow).—Institution of Municipal and County Engineers, S.E. District Meeting at Bridlington, 10.30 a.m.

WEDNESDAY.—Institution of Municipal Engineers. Joint Meeting of North-Eastern and Eastern Districts at Peterborough. Meet at G.N.R. Station, 12.15 p.m.

THURSDAY TO SATURDAY (JULY 4 to 6).—Visit to Liverpool of the Architectural Associations of London and Dublin. Supper at the Liverpool University Club, Saturday, 8 p.m.

Trade News.

WAGES MOVEMENTS.

AMALGAMATION OF BUILDING WORKERS.—A private conference of trade unions representing men employed in the building trade was held in London on Friday to consider the proposed amalgamation of the unions under the title of the Amalgamated Building Workers' Union, with a view to maintaining "a fighting organisation working to improve the conditions of the workers." At the end of the meeting Mr. Haverman, M.P., attended this conference, which represented 13 unions had approved the scheme. A ballot of the members concerned will be taken not later than September 30.

The death occurred at his residence Ivy-bank, Exeter, on Saturday, of Mr. H. H. Wippell, aged 71, head of a firm of church furniture and ecclesiastical iron workers.

At Lindfield, Sussex, on Saturday, there was dedicated to the public use a fountain as memorial of the Coronation of King George V. The memorial was designed by Miss Leslie, a sister of Mr. Leslie, R.A.

The city council of St. Albans are applying to the Local Government Board for sanction to borrow £750 for works of street widening and improvement at the corner of Beaconsfield-road and Victoria-street, at the corner of Hatfield-road and Upper Lutimere-road, and at the corner of Union-lane and Folly-lane.

A memorial to Mr. Alexander Anderson, the poet, better known as "Saracoman," has just been erected at the village of Kirkconnel, the birthplace of the poet. The monument is built of Galloway Bridge red freestone, and stands 14 ft. high. In the centre is placed a bronze medallion of the poet, by H. S. Gamley, A.R.S.A.

Great changes are about to be made in the Dresden Royal Court theatres. The Royal Opera House, designed by Semper, has been completely restored at a cost of £100,000, and the stage has been provided with all the latest mechanical appliances. It will probably be reopened on September 21.

The bicentenary fêtes in celebration of the birth of Jacques Rousseau were opened on Monday at Ermenouville, where, in a modest refuge given him by the Marquis de Girardin, Rousseau died in 1778. A monument was unveiled in the town on Monday; it is the work of the sculptor Henri Greber, and takes the form of a statue of Rousseau.

The Bishop of Kensington has laid the foundation-stone of a new church at Ashford, Middlesex, to be used as a chapel-of-ease to the parish church, and to be dedicated to St. Hilary. The nave and aisles only are now being built, to designs of Mr. J. S. Alder, at a cost of £4,700, and to seat 550; but the completed church will cost £7,500, and will seat 750.

Yorkshire master builders, meeting in Sheffield on Friday, complained that when they took on the National Insurance Act they did not know what they were undertaking. A strong protest was made at the fact that builders' sons engaged and employed by their fathers' should have to be registered at the labour exchanges as ordinary workmen. It was regarded as an indignity which no employer would entertain. The members were strongly recommended not to enter at present into any arrangement with the labour contribution card, but to wait in respect of their own cases.

A meeting was held on Friday of the special sub-committee of the street-improvement and buildings committee of the Bradford Corporation, appointed to consider the question of the building regulations. After discussion, a resolution was adopted, in which the Local Government Board is held an inquiry into the subject. The question of the adequacy of the building by-laws was brought into prominence by the prosecution of a builder and the dismissal of a building inspector.

TRADE NOTES.

The new isolation hospital, Earlestown, is being supplied with Shorland's double-fronted patent Manchester Stoves and patent Manchester Grates by Messrs. E. H. Shorland and Brother, Ltd., of Failsforth, Manchester.

Under the direction of Mr. J. A. Macgregor, architect, Castle Douglas, Scotland, the "Boy's Sanatorium Ventilation Natural," embracing Boyle's Lates Patent "Air-Pump" Ventilators and Air-Inlets, has been applied to Corscok Church, Corscok, Scotland.

Messrs. William Potts and Sons, Ltd., of Leeds, are making a new clock for Harwithington, West Yorks. The clock will show the time upon a large dial on the exterior wall, iron, one facing northwards and the other dial towards the south. It will be painted and gilt, with Lord Grimthorpe gravity escapement and compensation pendulum attached, and other improvements.

CHIPS.

The Norwich Education Committee have adopted plans by their architect, Mr. Brereton, that city, for a new council school in City-road, Lakenheath, estimated to cost £9,700. The school will be on the central hall plan.

The Whiteable Urban District Council has unanimously adopted the scheme prepared by Mr. Weeks, of Messrs Strachan and Weeks, 75 Westminster, London, for the treatment and purification of the sewage of Whiteable.

As a memorial to King Edward VII., the new operating theatre and recovery wards at the attached Cottage Hospital, Market Drayton, were formally opened on Saturday. The cost of the additions is over £300. Mr. T. Healey was the builder.

Mr. William Edmund Wallis, A.R.I.B.A., late of Hill Cottage, Caterham, and Buckingham-street, Strand, died at St. Catherine's, Littlehampton on Wednesday last week. He had been an Associate of the Royal Institute of British architects for thirty years.

The City Corporation adopted at their last meeting an arrangement for acquiring for £25,000, the freehold of the land and interests in the ground needed to widen the public way in London, 58, Fleet-street. The amount of the claim was stated to be £7,850.

The Kildare County Council, at its quarterly meeting, approved a scheme to construct and work a light railway between Acton and the coalfields at Gracefield in Queen's County. The length of the proposed line is 10½ miles, of which 3½ miles are in Kildare, and the remainder in Queen's County. The estimated cost of the project is £475,725. The proposed gauge is 5 ft. 3 in.

Mr. Nisbett, the architectural surveyor to the Dean and Chapter of Winchester, has designed carved oak covers for the service books to be used by the King and Queen at the banking of the service on July 15. The border is taken from the Benedictional of St. Ethelwold, which was transcribed in the Scriptorium of St. Swithun's Monastery, Winchester, in the tenth century.

On Wednesday week the Coronation permanent bath at Haslebach—an open-air swimming-bath—was formally opened by Lord Peckover, and handed over to the mayor and corporation. The bath has been erected on the site of the river. It has been constructed by Messrs. J. H. Taylor and Son, of Grimsby, and has cost just under £500. The bath measures 132 ft. by 30 ft., and the depth varies from 3 ft. 5 in. to 6 ft. 5 in.

An island site for the erection of a new headquarters building of the National Naval Cadets has been acquired in the Wandsworth-ward, close to the present headquarters, that corps. The area of the land is 18,000 square feet, the frontage on the Wandsworth-road being 100 ft., and the depth 180 ft. It is proposed to erect a building in the Tudor style, after designs by Mr. J. Marcus Houghland, 311, Clarendon-road, S.W. The total cost, including the land, which is freehold, will be £10,000.

The city council of Bradford discussed on Monday the appointment of a city surveyor and sanitary engineer in place of Mr. F. Frank. The Local Government Board wrote expressing the opinion that it would be preferable to separate the offices so that the sanitary inspector could devote the whole of his time to the duties of his office, and those under the Housing Regulations, 1910. The highways and sanitary committee recommended the separation of the offices; but the council, by seven votes to six, resolved to make a joint appointment, and Mr. J. H. Hill, who has been acting as housing inspector, was appointed.

LATEST PRICES.

IRON

[illegible]

OTHER METALS

| Spelter, Silesen | Per Ton | £35 10 | To | £35 12 6 |
|---|----------|----------|-----|----------|
| Lead Water Pipe, Town | 23 | 7 | 6 | |
| Country | 23 | 7 | 6 | |
| Lead Barrel Pipe, Town | 24 | 2 | 6 | |
| Country | 24 | 2 | 6 | |
| Lead Pipe, Tinned inside, Town | 25 | 6 | | |
| Country | 25 | 6 | | |
| Lead Pipe, Tinned inside and outside, Town | 26 | 17 | 6 | |
| Country | 27 | 12 | 6 | |
| Composition Gas-Pipe, Town | 27 | 7 | 6 | |
| Country | 28 | 0 | | |
| Lead Oil-pipe (12 to 14 in.) Town | 25 | 7 | 6 | |
| Country | 26 | 2 | 6 | |
| Sulphur in 21 per cent. bars. | | | | |
| Lead Sulph. in 26lb. bars. | 24 | 15 | 0 | 0 |
| Country | 24 | 15 | 0 | 10 |
| Copper, British Cast and Ingot | 81 | 0 | 85 | 0 |
| Tin, English Ingots | 210 | 0 | 210 | 0 |
| Do. Bars | 210 | 0 | 210 | 0 |
| 10. Bars | 211 | 10 | 212 | 0 |
| Pig Lead, in 14wt. pigs | 11 | 17 | 6 | |
| Sheet Lead, Town | 11 | 17 | 6 | |
| Country | 22 | 12 | 6 | |
| Genuine White Lead | 23 | 15 | 0 | |
| Refined Red Lead | 31 | 0 | 0 | |
| Sheet Zinc | 33 | 0 | 0 | |
| Do. Lead, against account | 11 | 10 | 0 | |
| Tin | | | | |
| 10. 14wt. bars | per cwt. | per cwt. | | |
| Country | 0 | 11 | 0 | |

TIMBER

| CONTRACT STANDARD | | | | | | | | | |
|---|---------------------------|-----------------|----|----|---|---|----|----|--|
| Per St. Petersburg Standard 120-12ft. by 14in. by 14in. | | | | | | | | | |
| 1st | St. Petersburg | 1st quality | 21 | 0 | 0 | 0 | 42 | 0 | |
| 2nd | " | " | 21 | 0 | 0 | 0 | 26 | 0 | |
| 3rd | " | " | 15 | 0 | 0 | 0 | 18 | 0 | |
| Sp | Deals | St. Johns | 7 | 5 | 0 | 0 | 11 | 0 | |
| 4th | " | Miramichi | 7 | 5 | 0 | 0 | 8 | 10 | |
| 5th | " | Swamp | 10 | 0 | 0 | 0 | 21 | 10 | |
| Re | Deals | Arbunash Island | 15 | 0 | 0 | 0 | 21 | 10 | |
| 6th | " | 2nd | 15 | 0 | 0 | 0 | 17 | 0 | |
| 7th | " | 3rd | 11 | 0 | 0 | 0 | 12 | 0 | |
| 8th | St. Petersburg | " | 16 | 0 | 0 | 0 | 17 | 0 | |
| 9th | " | 1st quality | 21 | 0 | 0 | 0 | 17 | 0 | |
| 10th | " | 2nd | 10 | 0 | 0 | 0 | 12 | 0 | |
| 11th | Wylburg & Leaborg | " | 10 | 0 | 0 | 0 | 12 | 0 | |
| 12th | Geffe, Gothenburg, | " | 10 | 0 | 0 | 0 | 17 | 0 | |
| 13th | and Stockholm | " | 10 | 0 | 0 | 0 | 12 | 0 | |
| 14th | White Deals | Crown | 10 | 0 | 0 | 0 | 12 | 0 | |
| 15th | " | Seconds | 5 | 10 | 0 | 0 | 10 | 0 | |
| 16th | 1st and 2nd quality mixed | " | 9 | 0 | 0 | 0 | 9 | 5 | |
| 17th | 1st and 2nd quality mixed | " | 8 | 5 | 0 | 0 | 11 | 0 | |
| 18th | 1st and 2nd quality mixed | " | 10 | 0 | 0 | 0 | 11 | 0 | |
| 19th | 1st Pine | Prime Deals | 17 | 0 | 0 | 0 | 30 | 0 | |
| 20th | Arbunash | Vite | 5 | 10 | 0 | 0 | 12 | 0 | |
| Per cubic foot | | | | | | | | | |
| 21st | Yellow Pine Logs | saw boards | 0 | 2 | 0 | 0 | 0 | 1 | |
| 22nd | Pitch Pine Logs | " | 0 | 1 | 6 | 0 | 0 | 1 | |
| 23rd | Barn | Quebec Logs | 0 | 2 | 0 | 0 | 0 | 2 | |
| 24th | Can | Austrian Waco | 0 | 2 | 0 | 0 | 0 | 2 | |
| 25th | Mal. shany | Gaboon | 0 | 6 | 1 | 0 | 0 | 6 | |

FURNITURE AND HARDWARE

[illegible]

STONE."

| | | |
|--|---------------|--------|
| Red Mansfield in blocks..... | per foot cube | £0 2 4 |
| Darley Dale, ditto..... | do | 0 2 3 |
| Red Corsehill, ditto..... | do | 0 2 3 |
| Cloaburg Red Freestone ditto..... | do | 0 2 0 |
| Acoaster, ditto..... | do | 0 1 10 |
| Greenshill, ditto..... | do | 0 1 10 |
| Chimark (in truck at Nine Elms)..... | do | 0 1 10 |
| Hard York, ditto..... | do | 0 1 10 |
| Driscold ditto..... | do | 0 2 10 |
| lindings, random sizes..... | per foot sup. | 0 2 8 |
| Ditto ditto sin. sin. sawn two sizes, random size..... | do | 0 1 3 |
| All F.O.R. London. | | |
| Bath Stone, delivered on rail at quarry stations..... | per foot cube | 1 0 |
| Delivered on road..... | do | 1 0 |
| Paddington Depot..... | do | 0 1 6 |
| Ditto, ditto, Nine Elms Depot..... | do | 0 1 8 |
| Ree Station delivered on rail at Seaton Station..... | do | 0 1 0 |
| Ditto, delivered at Nine Elms Station..... | do | 0 1 6 |
| Portland Stone, in random blocks of 20ft. average - Brown White | | |
| Delivered to railway depot..... | White Red | 1 3 1 |
| at the quarry, per foot cube 20 ft. 35 ft. 40 ft. 1 | | |
| Delivered on road waggon..... | | |

SLATES

| | in. in. | s. d. | per 1,000 of |
|-----------------|---------|-------|-------------------|
| Blue Portmadoe | 20 x 10 | 13 12 | 1,300 at 1 s. 10. |
| " " " | 16 x 8 | 6 12 | " " |
| Blue Bangor | 20 x 10 | 13 2 | " " |
| " " " | 20 x 12 | 13 0 | " " |
| First quality | 20 x 12 | 13 17 | " " |
| " " " | 20 x 12 | 13 0 | " " |
| " " " | 16 x 8 | 7 5 | " " |
| Eureka unfading | 20 x 10 | 15 17 | " " |
| green | 20 x 12 | 18 7 | " " |
| " " " | 16 x 10 | 13 5 | " " |
| " " " | 16 x 8 | 8 12 | " " |
| Permanent green | 20 x 10 | 11 12 | " " |
| " " " | 18 x 10 | 0 12 | " " |
| " " " | 16 x 8 | 6 12 | " " |

BRICKS

[illegible]

GLAZED BRICKS

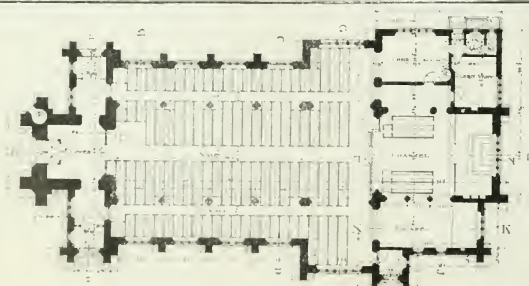
| HARD GLAZES, (PER 1,000.) | | | | | | |
|---|--------------------------------|-------------------|--------------------|--------------|--------------|--------------|
| White, Ivory, and Salt Glazed. | Rest. Buff and Cream. | Other Colours. | Second Colours. | | | |
| Seconds. | | | | | | |
| Stretchers— | | | | | | |
| £10 17 6 | 19 7 6 | £12 7 6 | £16 7 6 | £10 17 6 | £10 17 6 | £10 17 6 |
| 10 7 6 | 8 17 6 | 11 17 6 | 15 17 6 | 16 17 6 | 17 17 6 | 17 17 6 |
| Quoins, Bullnose, and 4 in. Flats— | | | | | | |
| 13 17 6 | 12 17 6 | 20 7 6 | 19 17 6 | 14 7 6 | 14 7 6 | 14 7 6 |
| Double Stretchers— | | | | | | |
| 16 7 6 | 14 17 6 | 19 7 6 | 22 17 6 | 16 17 6 | 16 17 6 | 16 17 6 |
| Double Headers— | | | | | | |
| 13 17 6 | 11 17 6 | 16 7 6 | 19 17 6 | 13 7 6 | 13 7 6 | 13 7 6 |
| One side and two ends, square | | | | | | |
| 17 7 6 | 15 17 6 | 20 7 6 | 21 17 6 | 17 7 6 | 17 7 6 | 17 7 6 |
| Two sides and one end, square | | | | | | |
| 18 7 6 | 16 17 6 | 21 7 6 | 25 7 6 | 18 7 6 | 18 7 6 | 18 7 6 |
| Splays and Splayed— | | | | | | |
| 17 17 6 | 14 7 6 | 20 7 6 | 21 7 6 | 15 17 6 | 15 17 6 | 15 17 6 |
| Plinth and Hollow Bricks, Stretchers and Headers— | | | | | | |
| 5d. each | 4d. each | 8d. each | 6d. each | 5d. each | 5d. each | 5d. each |
| Double Bullnose Round Ends, Bullnose Stairs, and Bullnose Mitres— | | | | | | |
| 5d. each | 4d. each | 6d. each | 6d. each | 5d. each | 5d. each | 5d. each |
| 4d. each | 3d. each | 5d. each | 5d. each | 4d. each | 4d. each | 4d. each |
| MOLTEN BRICKS. | | | | | | |
| Stretchers and Headers— | | | | | | |
| 8d. each | 8d. each | 8d. each | 8d. each | 8d. each | 8d. each | 8d. each |
| Internal and External Angles— | | | | | | |
| 12 1/2 each | 12 1/2 each | 1 1/2 each | 1 1/2 each | 1 1/2 each | 1 1/2 each | 1 1/2 each |
| Corn Bullnose, Stretchers and Headers— | | | | | | |
| 5d. each | 4d. each | 6d. each | 6d. each | 5d. each | 5d. each | 5d. each |
| Moulded and Glazed Stretchers and Headers— | | | | | | |
| £21 17 6 | £21 17 6 | £21 17 6 | £21 17 6 | £21 17 6 | £21 17 6 | £21 17 6 |
| Quoins and Bullnose— | | | | | | |
| 26 17 6 | 26 17 6 | 26 17 6 | 26 17 6 | 26 17 6 | 26 17 6 | 26 17 6 |
| Common bricks, circular and arch bricks of single radius 4 1/2 per 1,000 over above | | | | | | |
| exceeding— | | | | | | |
| 9 1/2 p. 100 | 9 1/2 p. 100 | 9 1/2 p. 100 | 9 1/2 p. 100 | 9 1/2 p. 100 | 9 1/2 p. 100 | 9 1/2 p. 100 |
| Common and other bricks, any kind or colour, 12 1/2 each | | | | | | |
| 12 1/2 each | 12 1/2 each | 12 1/2 each | 12 1/2 each | 12 1/2 each | 12 1/2 each | 12 1/2 each |
| Stretchers cut for Closets and Nicked Double Headers, 41 per 1,000 extra. | | | | | | |
| These prices are carriage paid in full truck loads to London Stations. | | | | | | |
| Thames Sand— | s. d. | | | | | |
| Pit Sand— | 7 0 | | | | | |
| Thames Ballast— | 6 0 | | | | | |
| Best Portland Cement— | 31 0 | 30 0 | 31 0 | delivered | | |
| Best Ground Blue Lime— | 20 0 | 20 0 | 20 0 | delivered | | |
| Exclusive of charges— | s. d. | | | | | |
| Grey Stone Lime— | 13 6 | 14 0 | 14 0 | delivered | | |
| Stroudbridge Clay in sacks 27s. 6d. per ton at railway station. | | | | | | |
| TILES. | | | | | | |
| Plain red roofing tiles— | s. d. | | | | | |
| Hip and Valley tiles— | 3 7 | per 100 | 40 | yd. at | | |
| Bracelet tiles— | 50 0 | per 1000 | 50 | yd. at | | |
| Bracelet tiles— | 50 0 | per 1000 | 50 | yd. at | | |
| Hip and Valley tiles— | 4 0 | per doz. | 40 | yd. at | | |
| Ruabon red, brown, or brinded— | | | | | | |
| Do. (E. Bards)— | 57 6 | per 1000 | 57 | yd. at | | |
| Ornamental do.— | 60 0 | per 1000 | 60 | yd. at | | |
| Valley tiles— | 4 0 | per doz. | 40 | yd. at | | |
| Valley tiles— | 3 0 | per doz. | 30 | yd. at | | |
| Selects— | | | | | | |
| Perfects— | | | | | | |
| roofing tiles— | | | | | | |



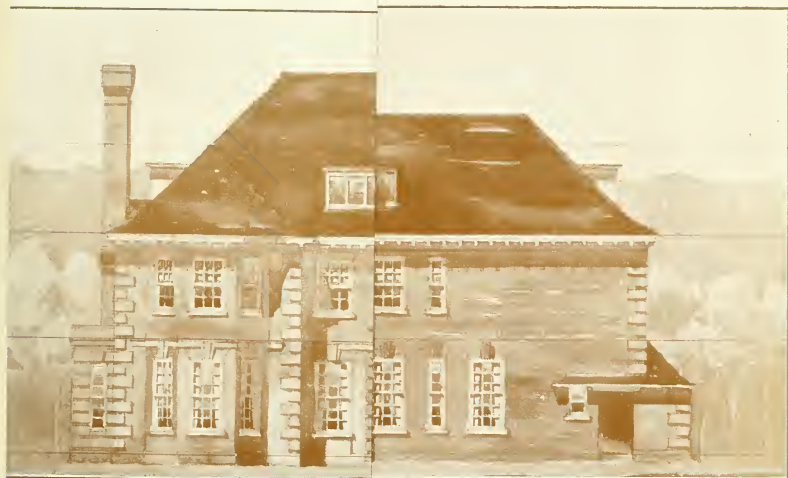


PREPARATORY SCHOOL, BISHOP'S STORTFORD COLLEGE.—MR. H. C. IMBERSON, F.R.I.B.A., Architect.

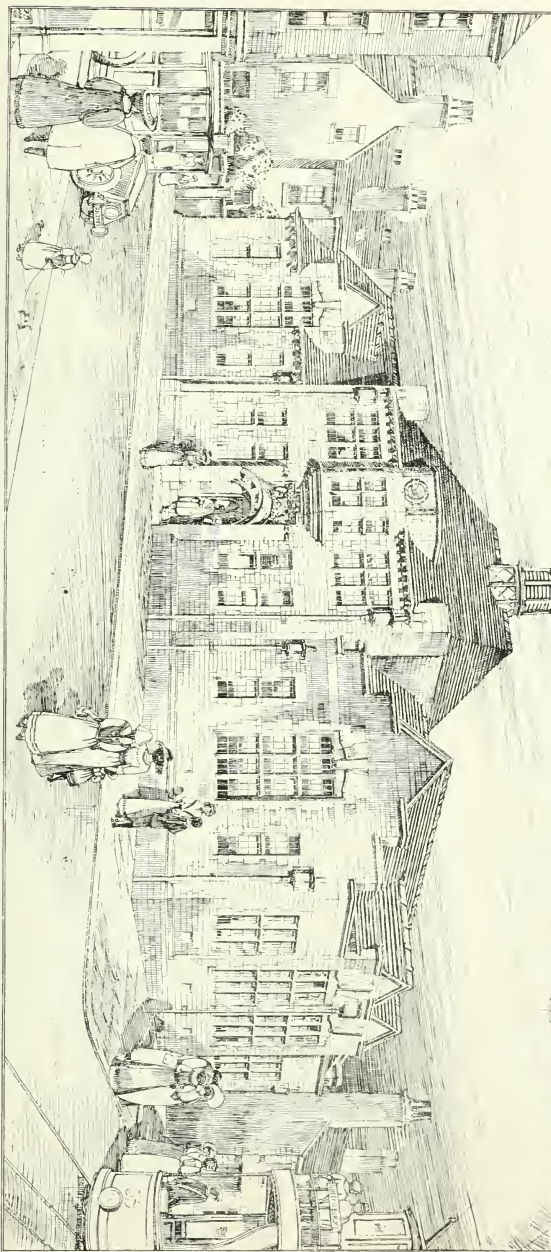
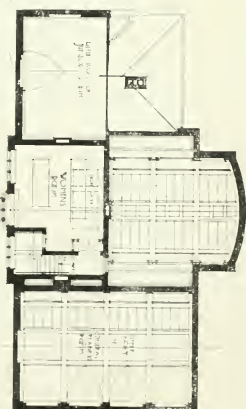
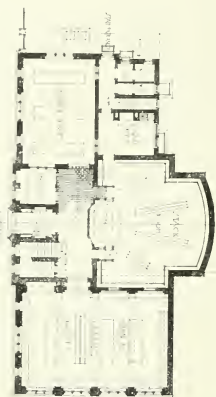




CHURCH OF ST. BARNABAS UNDER MOSSLEY HILL.
MR. I. FRANCIS DOYLE, F.R.I.B.A., Architect.

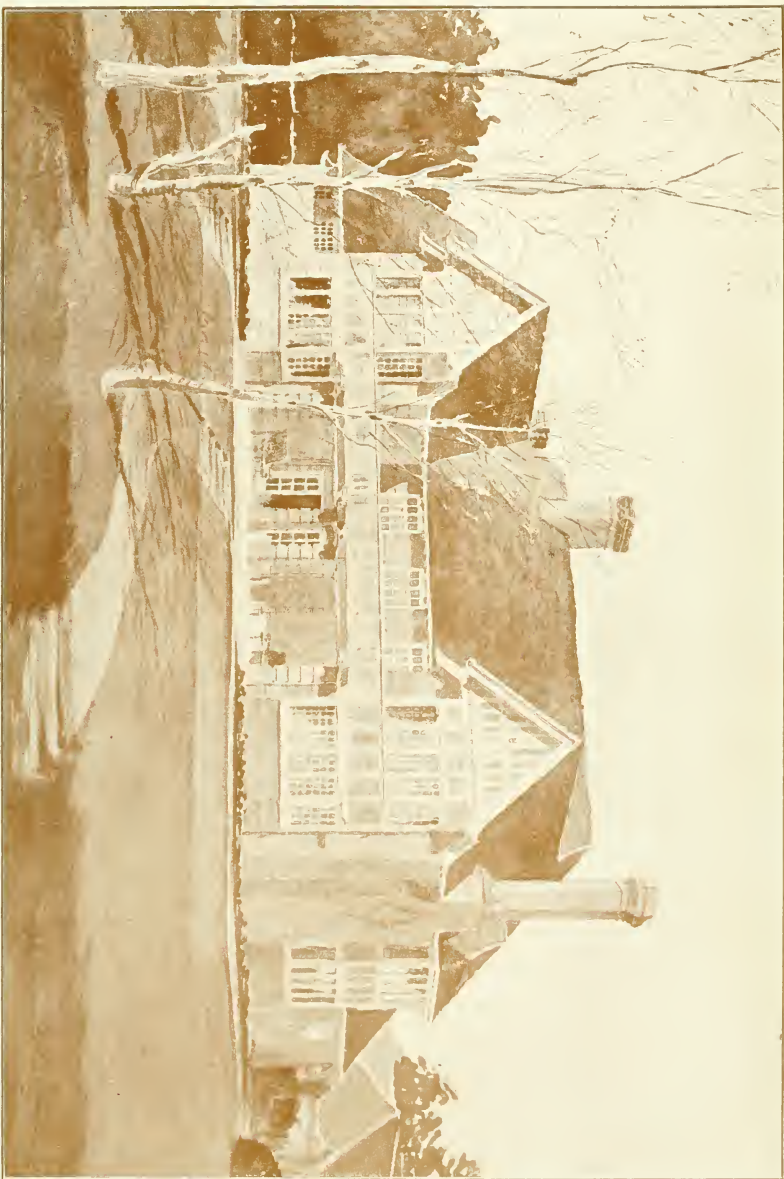


No. XVI. AVENUE ROAD, HORS. and A. FAULKNER, Architects.



GREAT HORTON PUBLIC LIBRARY, BRADFORD.—Mr. Wm. Williamson, Licentiate R.A.B.A., Architect.





GOLF CLUB HOUSE, SWINLEY FOREST, ASCOT. Messrs. T. E. COLLETT and STANLEY HAMP. Architects.

